Essays on ownership and control

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Publication date:
2014

Document Version
Publisher's PDF, also known as Version of record

Essays on Ownership and Control

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A dissertation submitted to the faculty of

Tilburg University

in partial fulfillment of the requirements for the degree of

Doctor of Philosophy in Finance

October 2014

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Proefschrift ter verkrijging van de graad van doctor aan Tilburg University op gezag van de rector magnificus, prof. dr. Ph. Eijlander, in het openbaar te verdedigen ten overstaan van een door het college voor promoties aangewezen commissie in de Ruth First zaal van de Universiteit op dinsdag 7 oktober 2014 om 10.15 uur door Francisco Urzúa Infante, geboren op 18 juni 1981 te Las Condes, Chili.

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Acknowledgements

I'm grateful to the many people that supported me during my PhD. First and foremost, I'd like to thank my advisors, Fabio and Marco. Their patience, guidance and encouragement not only allowed me to enjoy my years as a PhD student. They also pushed me to embark on ambitious research projects which then became the basis of my academic career. Yet more important than their academic support, they also showed an enormous generosity and understanding when things turned sour in Santiago.

Then I'd like to thank the members of my dissertation committee (Luc Renneboog, Uli Hege, Zacharias Sautner, Fabiana Penas and Oliver Spalt). Their comments allowed me to significantly improve my JMP, all of which will undoubtedly increase my chances of publishing it. I hope the new version lives up to their expectations.

I also would like to thank many friends at Tilburg, Utrecht and Santiago that helped me during the PhD. While we spent most of our time talking about parties and mountains, without their friendship these years would have been totally different. I just hope that their impact on my academic productivity was not as big as we'd think on the first place.

My family and Sanne also deserve a special mention. While my family members were able to understand that my career drove me away from Santiago and gave nothing but support, Sanne helped me turn this place into home. I hope that (some day) I'll be able to repay all of your love.

Finally, I must thank Borja Larrain, my co-author. I can barely express how happy I am of having asked for his help seven or eight years ago. Since then a fruitful relation developed, of which this thesis only shows the first two papers.

A todos, un millón de gracias, se pasaron.

Contents

I. Introduction

The thesis consists of three chapters. The first two chapters (Ownership dynamics with large shareholders: an empirical analysis and Controlling shareholders and market timing in share issuance) study the evolution of ownership concentration in Chilean listed firms between 1990 and 2009. The third chapter (Blocks, contractual incompleteness and agency problems) studies the role of contractual incompleteness' problems in determining asset ownership and thus the optimal firm size. The first two chapters are joint work with Borja Larrain (PUC Chile), while for the first chapter I also worked with Marcelo Donelli (IADB). Also important, the first and second chapters were published in the Journal of Financial Quantitative Analysis and the Journal of Financial Economics, respectively.

The first chapter studies ownership evolution in a country that had regulatory changes that improve the overall protection to minority shareholders. At the same time, the Chilean economy went through a deep transformation, with per capita GDP more than doubling and the local stock market being sufficiently active in terms of booms and busts so as to incite market timing behaviour. Crucially, I could also gather firm level corporate governance data, enabling me to measure agency problems accurately.

Unlike the U.S., where most firms become widely held after 10 years from the IPO (Helwege, Pirinsky, and Stulz (2007)), there is no noticeable trend towards ownership dispersion despite all the changes that occur in the two decades I study. As in other countries (continental Europe for instance), the benefits of concentrated ownership in Chile seem to be large when compared to the potential gains from diversification (Burkart, Gromb, and Panunzi (1997), Burkart, Panunzi, and Shleifer (2003), DeMarzo and Urosevic (2006), Shleifer and Vishny (1986), and Stulz (1988)). Yet despite the aggregate stability controllers sell and purchase large ownership stakes with relatively high frequency. Interestingly,

dilution is less likely when pyramidal structures produce a wedge between the controller's voting and cash-flow rights. As in the previous literature, I also find that market timing plays a role in understanding ownership dynamics (Helwege, Pirinsky, and Stulz (2007)). Ownership dispersion is preceded by high stock returns and predicts low stock returns in the future. Dilution through share issuance, as opposed to a block sale, is a particularly good predictor of low future returns.

The second chapter also studies ownership evolution, but now with a different emphasis, as I focus on a form of opportunistic behavior by controlling shareholders: market timing in equity issuance or the sale of overpriced shares to outside investors. The controlling shareholder has incentives for the firm to issue overpriced shares because, although his proportional ownership falls with issuance, the overall value of his stake increases.

Consistent with market timing, I find that share issuance in general predicts low future returns, as previously shown by Pontiff and Woodgate (2008) and McLean, Pontiff, and Watanabe (2009). Yet all of this predictive power comes from equity issues that imply substantial dilution of the controlling shareholder. Perhaps even more surprising, under–performance is evident following instances of dilution when the controlling shareholder reduces its stake by issuing new shares as oppose to selling his shares directly (a block sale). Before the issuance I find that the dilution of the controlling shareholder is preceded by high returns and high stock liquidity, which are both typical features of overvaluation (Helwege, Pirinsky, and Stulz, 2007).

Finally, the third chapter studies acquisitions of blocks. Blocks have been shown to have two main purposes. Alleviating contractual incompleteness problems and easing targets' financial constraints (Allen and Phillips (2002), Fee et al (2006), Liao (2010) and Ouimet (2013)). Yet these papers fail to disentangle between the predictions from the two theories that explain contractual incompleteness problems, the transaction cost economics

(Williamson (1971, 1979) and Klein et al (1978)) and the property rights' theory (Grossman and Hart (1986), Hart and Moore (1987), Hart (1995), and Aghion and Tirole (1994)).

The results show that blocks support the predictions from the property rights' theory, highlighting the importance of parties' initiative in shaping firms' boundaries. I also find that proxies of agency problems prevent blocks from taking place. Blocks are unlikely to take place in firms where there is a separation between voting and cash flow rights. Finally, blocks do not seem to ease financial constraints. This is surprising given that most blocks are private firms in countries with lesser developed capital markets than the US.

II. Ownership Dynamics with Large Shareholders: An Empirical Analysis

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Abstract

We study the empirical determinants of corporate ownership dynamics using a unique, hand-collected 20-year dataset on the ownership structure of Chilean companies. Controllers' blockholdings are on average high and stable over time. Controllers still make changes to their holdings through issuance and block trades. In a typical year controllers' blockholdings decrease (increase) by 5 percentage points or more in approximately 6% (7%) of firms. We find that the separation between controller's voting and cash-flow rights reduces the likelihood of ownership dilution. Dilution is preceded by high stock returns, and predicts low stock returns in the future when done through issuance.

∗ We thank an anonymous referee, Fabio Braggion, Ruth Bradley, Carla Castillo, Tobias Klein, Marco da Rin, seminar participants at Tilburg University and PUC Chile, and in particular Andrei Shleifer for comments and suggestions. We thank Fernando Lefort and Eduardo Walker for providing some of the data used in this paper. Francisco Muñoz and particularly Andrés Vicencio provided outstanding research assistance. Larrain acknowledges partial financial support from the Programa Bicentenario de Ciencia y Tecnología through the Concurso de Anillos de Investigación en Ciencias Sociales (code SOC-04) and from Grupo Security through Finance UC.

1. Introduction

There are systematic differences in ownership concentration across countries. Ownership is typically dispersed in the U.K. and the U.S., while most corporations are controlled by large shareholders in continental Europe, Asia, and Latin America (Barca and Becht (2001), Claessens, Djankov, and Lang (2000), Faccio and Lang (2002), and La Porta, López-de-Silanes, and Shleifer (1999)). Many questions remain open when trying to understand these differences in ownership concentration. For example, do markets naturally converge to the dispersed ownership paradigm of the U.S. and the U.K.? If so, at what speed is ownership being dispersed? What prevents some firms from becoming widely held? What motivates large shareholders to increase or decrease their stakes? Is it control turnover, a cash infusion to finance investment, market timing, the need to diversify their portfolios, or something else? Our paper sheds light on these questions.

Some recent papers study the dynamics of ownership and the process through which firms become widely held. Among U.S. firms Helwege, Pirinsky, and Stulz (2007) find that better stock market conditions, such as high returns and liquidity, are key variables to explain ownership dispersion. Following a similar methodology, although with an international sample, Foley and Greenwood (2010) show that investment opportunities and strong investor protection are also crucial for firms to disperse ownership. However, many firms do not become widely held even in countries with strong investor protection. For example, according to La Porta, López-de-Silanes, and Shleifer (1999), 20% of firms in the U.S. are controlled by large shareholders (typically families).[1] On the other hand, many firms become widely held in countries with relatively poor investor protection. For example, approximately 30% of listed firms are widely held in France (Faccio and Lang (2002)).

[1] According to Holderness (2009), this number could be much higher.

Chile provides a unique setting for studying ownership dynamics because it is a laboratory that can simultaneously shed light on various theories. In this market we observe regulatory changes that improve the overall protection to minority shareholders. At the same time, we can go beyond the country-level average of corporate governance and measure agency problems at the firm-level. This is crucial to understand within-country differences in ownership concentration as noted above. Also, the Chilean economy has gone through a deep transformation over the recent past. Per capita GDP more than doubled (tripled in PPP terms) implying a dramatic redrawing of investment opportunities as the market changed in size and competitiveness. The local stock market also suffered booms and busts that can incite market timing behavior if this is a motive behind changes in ownership. Overall, previous research has precisely identified these dimensions (legal protection to minority investors or agency problems broadly speaking, investment opportunities, and stock returns) as the main drivers of ownership dispersion. Thus, by studying ownership dynamics in a country that has changed along all of these dimensions, we can better understand the motivations of controlling shareholders. Also, with the data available in this market we can take into account a key dimension that has remained under the radar in recent papers, namely whether control is transferred or not, and at what point, as ownership evolves. As suggested by the model of Zingales (1995), many changes in ownership concentration (e.g., going public or diluting ownership without surrendering control) can perhaps be better understood as decisions of a controlling shareholder who seeks to maximize the extraction of rents in a future sale of control.

Chilean ownership data is of excellent quality even when compared to the recent literature. First, we are able to assemble a dataset of the controllers' blockholdings in almost all listed companies over a period of twenty years (1990-2009). This is a long time series. For example, Helwege, Pirinsky, and Stulz (2007) only have 15 years of ownership data in the

U.S., which is the country with the most comprehensive financial datasets. Also, every firm in our sample is covered each year of its existence. Other papers typically rely on cross-sections or short panels of ownership data, which are often sampled at intervals longer than a year. Second, we are able to identify the controller by name and her stake in the company in a precise way, which allows us to determine when control is transferred from one large shareholder to another. In other work, for instance Helwege, Pirinsky, and Stulz (2007) or Foley and Greenwood (2010), blockholdings are measured for insiders (officers and directors) as an anonymous group. Third, we are able to combine data on ownership structures with data on boards of directors, which paints a more complete picture of the effects of ownership changes. Finally, we are able to map out the entire web of corporate pyramids. This process is cumbersome, as it requires an intimate knowledge of the corporate structure of many intertwined companies, and is therefore hard to replicate in other samples. Pyramids, which are common in many other parts of the world (see Morck, Wolfenson, Yeung (2005)), imply a separation of cash-flow rights and voting rights. Previous literature has used this separation as proxy for agency problems so it adds an interesting dimension to our tests (see Claessens, Djankov, and Lang (2000), Claessens, Djankov, Fan, and Lang (2002), Lin, Ma, Malatesta, and Xuan (2011), and Lin, Ma, and Xuan (2011)).

Despite these unique features of the Chilean data, what we learn from it can shed light on ownership dynamics in a number of different markets. According to Djankov, La Porta, López-de-Silanes, and Shleifer (2008), Chile is similar to other developed and emerging economies in continental Europe, Asia, and the rest of Latin America in terms of the size of its equity market relative to GDP, IPO activity, the level of control premium, typical control mechanisms (e.g., pyramids, dual-class shares, etc.), and the overall level of ownership concentration. In other words, Chile resembles many other markets where large shareholders are prevalent. According to the same authors, the protection to minority shareholders in Chile

is not as good as in the U.S., but is close to the average of common law countries, which are more advanced in terms of curbing corporate abuses. This implies that the legal environment for investors in Chile is typical of many markets outside the U.S.

We see that unlike the U.S., where most firms become widely held after 10 years from the IPO (Helwege, Pirinsky, and Stulz (2007)), there is no noticeable trend towards ownership dispersion despite all the changes that occur in the two decades we study. For example, the median controller holds 61% of shares in 1990 and 67% in 2009, while less than 1% of firms are widely held when applying the threshold of 10% of ownership usually considered in the literature. The median controller's stake is quite high, but roughly comparable to the 57% observed in Germany or 50% in France (Barca and Becht (2001), Faccio and Lang (2002)). As in these other countries, the benefits of concentrated ownership in Chile seem to be large, either in terms of curbing managerial excesses or permitting consumption of private benefits, when compared to the potential gains from diversification (Burkart, Gromb, and Panunzi (1997), Burkart, Panunzi, and Shleifer (2003), DeMarzo and Urosevic (2006), Shleifer and Vishny (1986), and Stulz (1988)).

However, and despite the aggregate stability, controllers sell and purchase large ownership stakes with relatively high frequency. In a typical year approximately 6% of controllers reduce their stake by 5 percentage points or more while 7% increase their stake by a similar amount. Less than 10% of these events correspond to changes in the identity of the controller. Changes in a company's board of directors are more common than changes in controller. In some cases the board increases in size, while in others only its composition is modified. These changes may have a strategic purpose such as sealing an alliance with another family or a financing partner.

We find that dilution is less likely when pyramidal structures produce a wedge between the controller's voting and cash-flow rights. There are demand-side and supply-side

explanations for this finding. A demand-side explanation, focused on the wedge as proxy for agency costs, would be that outside investors are reluctant to buy shares when there is a wedge because the controller's interests are poorly aligned with those of minority investors. A different interpretation is that investors may prefer not to buy shares because this would dilute the ownership leverage previously given to a skilled controlling shareholder. In this case the wedge is not a sign of agency problems but simply a reflection of the management skills of certain large shareholders. Supply-side explanations would argue that controlling shareholders are less willing, or in less need, to sell a stake in companies with larger wedges. Almeida and Wolfenzon (2006) argue that controlling shareholders can finance firms at the bottom of pyramidal structures with little of their own capital. Under this view, firms controlled with a wedge are less likely to issue equity because investment can be easily funded with capital from other firms in the conglomerate. At the same time, controlling shareholders may be extracting large private benefits from firms they control with a wedge because this does not impact their final cash flows, and therefore they may be less keen on diluting their stake in these companies. Irrespective of the interpretation our finding is important for the literature on ownership dynamics since it shows that pyramidal structures, which are one of the main reasons for the difference between voting and cash flow rights (Adams and Ferreira (2008)), do not facilitate ownership dispersion. Also, the wedge between voting and cash flow rights varies across firms, and not only across countries, which helps to explain why even within the same country some firms become widely held and others do not. Simply put, firms in pyramids are less likely to become widely held.

Foley and Greenwood (2010) show that ownership is diluted more easily in countries that offer better investor protection. In line with their results, we find that an improvement in the legal protection to Chilean investors in the year 2000 reduces the frequency of increases

in ownership concentration afterwards. However, better investor protection, at least along the dimensions included in the Chilean reform, does not lead to quick ownership dilution.

We continue our analysis by looking at what happens after changes in ownership concentration (see Pagano, Panetta, and Zingales (1998) for a similar strategy). For instance, what if dispersion is the only way to finance a new investment or to obtain debt financing? We do not find evidence of changes in investment, debt growth, or leverage for up to three years after events of dispersion. Neither we find significant changes in profitability as models of adverse selection would suggest. Zingales (1995) predicts that transfers of control are more likely after events of dispersion since these allow the controller to extract more rents from a potential buyer who also enjoys the private benefits of control. Turnover of control is always very low in our sample and does not increase significantly after dispersion.

As in previous literature, we also find that market variables are important for understanding ownership dynamics (Helwege, Pirinsky, and Stulz (2007)). Ownership dispersion is preceded by high stock returns and predicts low stock returns in the future. Return predictability is equally strong after events with and without changes in the board of directors. The presence of institutional investors does not eliminate return predictability as could be expected under some theories if institutions are sophisticated investors. Dilution through share issuance, as opposed to a block sale, is a particularly good predictor of low future returns, which is in line with recent evidence on the relationship between issuance and returns (Fama and French (2008), and Pontiff and Woodgate (2008)). There are several interpretations for these findings. First, controlling shareholders may be exploiting inside information at the expense of naïve or less-informed outside investors. Alternatively, controlling shareholders may simply lean against stock market bubbles, at the level of the entire market or a particular industry, which would imply that their actions play a stabilizing role. We find that there is no obvious clustering of dilution events in time periods or

industries, which sheds some doubts on the presence of specific bubbles. However, our findings are not enough to fully discriminate between these two views on the connection of dilution and future returns. This is a call to caution since the policy implications and the need for regulatory intervention are quite different in each case.

Overall, our results suggest that ownership dynamics –in Chile and potentially in many other markets where large shareholders are prevalent– are better understood as intermediate steps taken by a large shareholder who retains control all along (as in Zingales (1995)). Differences in the way firms are controlled help to explain why ownership dilution is not seen in many firms or why ownership concentration is so persistent. Stock market performance also has an impact on ownership dilution, in particular when related to issuance, but market timing does not seem to be the whole story for ownership dynamics. Finally, ownership dynamics do not have a sizeable impact on real firm performance, at least in the short run.

The rest of the paper is organized as follows: in Section 1, we review the main theories of ownership dynamics and in Section 2 describe our data in detail. In Section 3, we present a regression analysis of the determinants of changes in the blockholding share and, in Section 4, study the aftermath of ownership dispersion and concentration before presenting our conclusions in Section 5. An online appendix (available at www.jfqa.org) contains further description of the dataset and robustness checks.

2. Ownership Dynamics: Motivating Theories

In this section we provide a brief summary of the main insights and empirical predictions of different models. For reasons of simplicity, most theories emphasize one aspect of ownership dynamics and are not, therefore, mutually exclusive.

a. Adverse Selection

Leland and Pyle (1977) present a model of asymmetric information where the insider retains equity in order to signal the firm's quality. Under this model, an improvement in the informational environment opens the way to ownership dispersion due, for example, to an increase in the transparency of firms' financial statements or the greater presence of independent auditors and stock market analysts. Adverse selection would be reflected in the relatively low profitability of firms after dispersion because only bad firms disperse ownership in equilibrium. In addition, we should see a market-wide shift towards dispersion as the corporate environment becomes more transparent as has been the case in Chile over the last 20 years.

b. Agency Problems

Jensen and Meckling (1976) present an agency model where controllers have to retain a significant fraction of equity in order to curb moral hazard problems. If they do not do so, their incentives and those of other shareholders are not properly aligned and insiders capture excessive private benefits. Under the agency view ownership dispersion is permitted by any factor that better aligns the incentives of controllers and minority shareholders, such as an improvement in legal protection of minority investors or greater stock market liquidity leading to a more active market for corporate control. In a related agency theory, Shleifer and Vishny (1986) point out that concentration may be the optimal way to avoid the free-rider monitoring problem that arises with dispersed ownership. In this case, dispersion would be

permitted by declining monitoring costs or better legal protection of shareholders against managerial misbehavior.

c. Diversification

The need for diversification is a standard reason to expect a trend towards dispersed ownership. In the model of DeMarzo and Urosevic (2006), the controller faces a trade-off between stake reduction, with the resulting diversification of firm risk, and stake maintenance in order to monitor the manager, with a positive impact on the firm's cash flows. Under this model, aggravating the moral hazard problem reduces the speed of adjustment of the controller's stake towards its optimal (more diversified) level. The advantage of this model is that it explicitly discusses dynamics while other models are essentially static.

d. Market Timing

The market timing hypothesis has received considerable attention in the recent literature. Under this view, insiders issue or sell blocks of shares at high prices and repurchase or buy blocks when prices are low (Loughran and Ritter (1995)). These transactions are motivated by the short-term profits that can be made when market prices show irrational deviations from their underlying fundamentals. Controlling shareholders may exploit inside information at the expense of outside investors, or perhaps they simply lean against a stock market bubble. In the first case, market timing is another sign of agency problems. In the case of bubbles the interpretation is less clear. It is potentially optimal, in the sense of achieving price stabilization, to push against the bubble by selling overpriced assets. Therefore, the appropriate response of a market regulator is quite different depending on the source of market timing.

Baker and Wurgler (2000) examine the market timing hypothesis in the context of equity issuance in the U.S. Henderson, Jegadeesh, and Weisbach (2006) find evidence consistent with market timing in a broad sample of markets and asset classes. Finally,

Graham and Harvey (2001) present survey evidence in which two-thirds of CFOs identify equity overvaluation and recent stock price behavior among the key factors influencing the decision to issue equity. In the case of ownership dynamics, the market timing hypothesis predicts that ownership dispersion is more likely when prices are high or after firms experience high returns. On the contrary, low prices or low returns should lead to further ownership concentration. More importantly, ownership dispersion should predict low future returns as overvaluation disappears. By the same token, concentration should predict high future returns. As Baker and Wurgler (2002) argue, the defining feature of the market timing hypothesis refers to future return predictability since other models (e.g., asymmetric information) also imply that firms should issue when valuations are high, but not that past ownership dynamics should predict future returns.

e. Control

Zingales (1995) studies the decision to go public and the size of the ownership stake to be retained. The controller views the IPO as a means to achieve the ownership structure that will maximize the value of the company in a future sale. By giving cash-flow rights to disperse shareholders but simultaneously retaining control, the controller can increase his bargaining power in a future negotiation with a buyer who would also enjoy the private benefits of control. It is reasonable to think that similar considerations also apply in the case of the large shareholders in our sample. As noted by Pagano, Panetta, and Zingales (1998), one important implication of this model is that control transfers are more likely after events of dispersion.

f. Borrowing Constraints

One benefit of dispersed ownership is easier and cheaper access to debt financing. Recent research shows that firms where the wedge between the controller's voting and cash-flow rights is smaller or non-existent (usually firms with more dispersed ownership) are less

financially constrained and pay less for credit (Lin, Ma, Malatesta, and Xuan (2011) and Lin, Ma, and Xuan (2011)). One implication of this theory is that ownership dispersion should be followed by increased investment as the borrowing constraint is relaxed and by debt growth as credit becomes cheaper.

3. Data

a. Data Collection

In Chile listed companies are required by law to disclose their twelve largest shareholders in their annual reports, indicating the number of shares each holds. As these shareholders are almost always other companies, this information is in itself little help in identifying a company's ultimate controller. However, annual reports also explain whether control is exercised through one holding firm that owns all of the controller's shares or often through several firms related to the controlling shareholder.

Companies' annual reports as from 2004 onwards are publicly available on the website of the Superintendencia de Valores y Seguros (the Chilean stock market regulator, hereafter SVS) and a few companies also post older reports online. From 1990 to 2003 we obtain the twelve largest shareholders of these companies from two private databases, Fecus Plus and Economatica. These also provide excerpts of companies' annual reports including financial information and board composition along with other legal data. With all this information we identify each firm's controller (a family, an individual, the state, etc.). We have to check every firm and year individually by hand between 1990 and 2009.[2]

[2] As far as we know, there is no database covering Chilean listed companies' ownership and financial data before 1990.

Chile resembles continental Europe and Asia in terms of the major types of controlling shareholders. Around half of the firms in our sample are controlled by families. Foreign-controlled firms, whose importance has increased over the last two decades, now represent more than 10% of all companies. Multiple blockholders (a coalition of two or more large shareholders without direct family ties) account for 30% of companies while the rest of the companies are controlled either by the state or individual investors.[3] Further details can be found in the appendix.

For each firm-year we identify all stakes related to the controller and compute the total fraction of shares outstanding that he or she holds. We call this the blockholding share. An example of this methodology is provided in Table 1 where we examine the case of CMPC, a forestry company that is one of Chile's largest and most emblematic firms. It is controlled by the Matte family, and under their direction the firm became one of the world leaders in pulp production. The family members do not directly own shares in CMPC but control the company through a pyramid of companies with names that bear no resemblance to the family name, making the task of tracking the blockholding share considerably more difficult. We identify all stakes controlled by the Mattes throughout the pyramid upon arriving at the family's privately-held companies. We see that both the companies through which the Mattes control CMPC, as well as the stakes they hold, have remained basically unchanged for the last 20 years. The three companies that hold the largest stakes in CMPC in 2009 are Forestal

[3] Franks, Mayer, Volpin, and Wagner (2012) show that families own the largest fraction of listed firms in several countries in continental Europe: 66% in Italy, 48% in France, and 35% in Germany. La Porta, López-de-Silanes, and Shleifer (1999) report similar evidence for other European countries such as Sweden (55%) and Belgium (50%), East Asian countries such as South Korea (35%) and Latin American countries such as Argentina (65%) and Mexico (100%).

Cominco (19.6%), Forestal, Constructora y Comercial del Pacífico Sur (19.2%), and Forestal O'Higgins (7.1%), a situation very similar to that seen in 2000 and, perhaps even more surprisingly, 1990. For each year in our sample we look for these and other companies controlled by the Matte family (such as Forestal Bureo and Forestal Coindustria), adding the fraction of shares they hold and obtaining the controller's stake.

We know from Franks, Mayer, Volpin, and Wagner (2012) that family ownership is quite stable in the 1,000 largest (listed and private) companies in Germany, France and Italy between 1996 and 2006. The stability of the control structure of CMPC over a 20-year period is, however, noteworthy and is, moreover, not an exception in our sample. For example, only 17% of firms change controller between 1990 (or the first year they appear in the sample) and 2009.

We follow the same procedure illustrated for CMPC with more than 3,000 firm-year observations in our sample. Our methodology may have some biases. For instance, if the controlling shareholder holds other smaller stakes, not included among the twelve largest, we would be underestimating the size of the controlling stake. However, this bias is bound to be very small given that in Chile the combined average stake of the twelve largest shareholders reaches 77% in 1990 and 87% in 2009.

Our database contains almost all listed, non-financial Chilean companies, excluding only highly illiquid and small entities such as country clubs and schools. The sample covers 85% of Chilean stock market capitalization on an average year, with financial companies accounting for most of the remaining 15%. Another sign of stability is that nearly 90% of the companies that were listed in 1990 are also listed in 2009.

An interesting fact about Chile is that the majority of large firms are listed, rather than privately-held. In contrast, Franks, Mayer, Volpin, and Wagner (2012) find that listed firms are an exception among the 1,000 largest companies in Germany, France and Italy. In this

respect we benefit from Chile's unique recent history. Due to President Salvador Allende's nationalization scheme in the early 1970s and the debt crisis of the 1980s, many large companies came under state ownership. Between 1985 and 1989 the government of General Augusto Pinochet implemented a privatization program through the stock market. Most of those companies are in our database. In addition, a few state-owned water companies were privatized in the mid-1990s. Despite the fact that we study only listed firms, our sample therefore represents a large fraction of the Chilean economy and, on almost any measure, our database includes the country's largest companies.

b. Pyramids, Cash-Flow Rights, and Voting Rights

Separation of control and cash-flow rights is common in East Asia (Claessens, Djankov, and Lang (2000)), Europe (Faccio and Lang (2002)), and the U.S. (Villalonga and Amit (2009)) as well as in Chile (Lefort and Walker (2000)). This wedge is mainly achieved through the use of pyramids and multiple-class shares. We compute controllers' cash-flow rights, i.e., the fraction of dividends received by the controller, either by multiplying all blockholdings in the pyramidal chain or by determining the control and cash-flow rights of each share class and then multiplying them with the stake the controller holds in each class.

For example, Viña Santa Rita, one of Chile's largest wine producers, is controlled by the Claro family through a chain of two listed companies (Elecmetal and Cristalerías) and several intertwined privately-held companies. The Claro family controls approximately 50% of Elecmetal, which holds 34% of Cristalerías, which in turn holds 55% of Santa Rita. Considering only the links through these listed companies, the claim of the Claro family on Santa Rita's dividends would be 9.3% (=50%×34%×55%). Once the holdings through privately-held companies are added, the blockholding share of the Claro family in Santa Rita

increases from 55% to 78% and their cash-flow rights increase to 20%. The wedge is still a sizable 58%.[4]

Pyramids are more common than multiple-class shares in Chile. Approximately one-third of firms are controlled through pyramids while no more than ten are controlled through multiple-class shares. Fortunately, Chilean pyramidal structures are simpler than, say, the standard Korean chaebol (Almeida, Park, Subrahmanyam, and Wolfenzon (2011)). The typical pyramid has only two listed firms. Another simplifying factor in the configuration of Chilean pyramids is the legal prohibition on cross-holdings introduced in the aftermath of the debt crisis of the 1980s. For example, Copec, the largest listed Chilean company, is controlled by the Angelini family through a chain that involves only one publicly-traded company (Antarchile) and one privately-held company (Inversiones Angelini). The latter holds 70% of Antarchile and Antarchile holds approximately 60% of Copec. Therefore, the wedge in Copec's case is 18% (=60%-70%×60%). As it was the case with the Matte family and CMPC, the Angelini family also managed to transform Copec, a diversified

[4] When compared to the literature on pyramidal structures such as Adams and Ferreira (2008), our methodology for computing voting rights corresponds to the last link in the pyramid. For example, under the last-link methodology the controller owns 55% of the voting rights of Santa Rita. Another way of measuring voting rights is the weakest link, which considers the smallest blockholding stake in the chain of control. The weakest link in the case of Santa Rita would be 34%. While Claessens, Djankov, and Lang (2000) use the weakest link, other papers such as La Porta, López-de-Silanes, and Shleifer (1999) and Lins (2003) use the last link. The last link is the appropriate measure for our purposes since it captures the ownership structure of the firm of interest, and not that of other firms in the pyramid.

conglomerate, into one of the world's main players in the pulp industry, and the leader in the Chilean gasoline station market.

Another difference with Korean or Japanese pyramids is that most pyramids in Chile are not formed by existing firms listing subsidiaries or acquiring other listed firms. Instead, we often see a family listing a holding company that owns shares of other already-listed firms. For example, Quiñenco, the holding company of the Luksic family, was listed in 1996 although many firms of the Luksic group such as CCU (Chile's largest brewery) and Telefónica del Sur (a telecommunications company) were already listed. Thus, unlike the evidence from pyramidal structures in other countries, pyramids in Chile do change throughout our sample period, mostly by controlling shareholders adding new firms at the top, as in the Quiñenco example. Further details about the use of pyramids and multiple-class shares can be found in the appendix.

Most of the theoretical and the empirical literature on pyramids finds that more valuable and profitable firms are at the top of the pyramid, while less valuable and less profitable firms are at the bottom (Claessens et al (2002), La Porta et al (2002), Almeida and Wolfenzon (2006), and Almeida et al (2011)). Table 2 compares firms controlled with a wedge (through pyramids or dual-class shares) and firms that do not show a wedge in their ownership structure. Also, within pyramids we compare firms with a wedge (i.e., firms at the bottom pyramid) and firms without a wedge (i.e., firms at the top of the pyramid). Firms controlled with a wedge are larger. Firms controlled with a wedge also have slightly lower stock returns and lower Tobin's Q, which is in line with previous literature, although the differences are not statistically significant across groups. Only the ratio of EBIT to sales is higher in firms with a wedge (12% vs. 10%), however the effect disappears within pyramids. Overall, the wedge between cash flow and voting rights is not clearly associated with over- or under-performance in this market.

Figure 1 plots the distribution of the blockholding share and cash-flow rights in 1990, 1995, 2000 and 2005. We see that ownership is extremely concentrated throughout the sample period and there is even a slight shift to the right (more concentration) in the latter part of the sample. The wedge remains sizeable throughout the sample period as seen in the third panel of Figure 1 (which shows only firms with a positive wedge).

Table 3 shows the annual mean and median blockholding share and cash-flow rights. The average blockholding share increased slightly from 63% in 1990 to 68% in 2009, but has remained stable since the end of the 1990s. Average cash-flow rights also increased from 56% to 59%. The median blockholding share implies that in most years 50% of the firms have a blockholding share larger than two-thirds.[5] Under Chilean law some important decisions, such as divestments, mergers, board composition and dividend policy, require a two-thirds majority, which explains the attractiveness of the two-thirds stake.

Chilean securities law improved significantly in 2000 (effective 2001) under a reform designed mainly to regulate tender offers. As a result control transfers must now be made public and an appropriate exit for minority shareholders has to be offered. In addition, related-party transactions require the approval of the board and boards must include independent directors. Despite this movement towards transparency and protection of

[5] Our evidence is similar to that reported in previous research on Chilean companies using subsamples of our dataset. Lefort (2005) finds that the largest shareholder in 2002 holds 55% of shares, while the three largest shareholders hold a combined 74%. Majluf, Paredes, and Silva (2006) study Chilean listed firms in 2000 and find that the mean of controllers' blockholdings is 65% while the mean of cash-flow rights is 53%. A follow-up paper by Majluf and Silva (2008) uses data from 2000 and 2003 and finds that controllers' stakes are on average 66%. Finally, Lefort and Walker (2007) show that the stake owned by the three largest shareholders for the period 1990-2002 averages 59%.

minority shareholders, we do not see an immediate change in controllers' blockholdings after the law was passed, which reinforces the idea of persistence and slow-movement in ownership structures.

Control and cash-flow rights are higher in Chile than in Europe (Barca and Becht (2001) and Faccio and Lang (2002)) but not so much so as to make a significant difference. The median blockholding in our sample is 68% as compared to 57% in Germany and 50% in France. Median cash-flow rights are 48% in Germany and 38% in Italy. The average wedge between control and cash-flow rights is 9% in Chile, which is comparable to the 10% in Italy and 6% in Germany observed by Faccio and Lang (2002). The Chilean wedge is, however, much lower than the average wedge found by Almeida, Park, Subrahmanyam, and Wolfenzon (2011) in Korea, which is more than 40%.

c. Changes in the Blockholding Share

We report the frequency of large changes in the blockholding share in Table 3. In line with the previous literature on ownership dynamics, we study decreases in the blockholding share that are larger than 5 percentage points (Helwege, Pirinsky, and Stulz (2007) and Foley and Greenwood (2010)). We also study increases in concentration unlike previous papers. Despite the aggregate stability we find in the blockholding share, these changes are not infrequent: 6% (7%) of the firms experience such a decrease (increase) in the blockholding share in a typical year. The early 1990s are more active in terms of ownership dilution than later years. The decrease in the number of firms concentrating ownership is particularly marked after the legal changes introduced in 2001.

Panel B in Table 3 shows that both dilution and increases in concentration are well spread through time and industrial sectors. NAICS 2 to 5 contain most changes, but that is simply because more than 90% of the firm-year observations in our sample belong to those sectors. The fact that changes in ownership are evenly spread through the sample suggests

that our events do not correspond to short-lived stock market bubbles in some periods or industries. This is reinforced by the lack of high-tech and real estate firms in the Chilean stock market, which are usually considered to be industries that are more prone to bubbles. Complementing this analysis, within each industry we compare those firms that dilute with those that do not dilute ownership. We find no significant difference in Tobin's Q in the year before dilution. On average, market-to-book ratios are higher in firms diluting (2.90) compared to their industry peers (2.04), but this difference is not statistically significant either. Something similar occurs when we look at those firms that further concentrate ownership.

Figure 2 shows the histogram of annual changes in the blockholding share and cash-flow rights. This figure highlights the stability of ownership structures. Almost 80% of firm-year observations show zero change. The corresponding figure for U.S. firms as reported by Helwege, Pirinsky, and Stulz (2007) is less than 60%. We also find that controllers' cash-flow rights are very stable. Most cash-flow rights stay constant and the few significant changes we see are increases rather than decreases. In Table 4 we explore the connection between the frequency of dilution or concentration and the wedge between voting and cash-flow rights. We separate negative and positive changes in blockholdings and, within each, further distinguish between firms with and without a wedge. Firms with a wedge have a significantly lower frequency of dilution than other firms (2% vs. 7%). However, there is no clear difference between firms with and without a wedge in the case of increases in concentration (6% vs. 7%).

We further distinguish two channels for dilution: block sales and equity issuance. The decomposition of the change in the blockholding share (α_t) is as follows:

(1) $$\Delta\alpha_t = \frac{S_t}{N_t} - \frac{S_{t-1}}{N_{t-1}}$$

$$= \frac{\Delta S_t}{N_{t-1}} - \alpha_t \frac{\Delta N_t}{N_{t-1}},$$

where N_t is the number of shares outstanding at time *t* and S_t is the number of shares held by the controller at time *t*. The first term in equation (1) represents changes in the blockholding share that occur through block sales (if negative) while the second term represents dilution through issuance of new shares. Following Foley and Greenwood (2010), we assume that a decrease in the blockholding share occurs through issuance if issuance is positive and through a block sale if issuance is zero or negative. This definition is somewhat arbitrary since block sales and issuance can happen simultaneously but is nevertheless informative given that issuance is infrequent in our sample. Table 4 shows that decreases through block sales and issuance are almost equally likely, and that both seem to depend on the absence of a wedge between voting and cash-flow rights. Block sales represent 4% of observations when there is no wedge and only 1% when there is a wedge. The same numbers apply to dilution through issuance.

Figure 3 shows the experience of some individual firms in our sample. We divide firms into two sets according to whether there is a wedge between control and cash-flow rights or not. For example, Parauco -one of the biggest mall chains in Chile and now successfully expanding through Latin America- shows a slow dispersion of ownership through block sales. The equity issues of Parauco are matched by block purchases so they do not represent a change in the blockholding share. In Fasa -one of the biggest pharmacy chains- the two big equity issues of the late 1990s represent a significant dilution of the controller's stake. The decreases in the blockholding share in LAN Airlines also occur through block sales in 1994 and 2004. We also show three firms with a positive wedge

between voting and cash-flow rights and find that the wedge may increase or decrease even if the blockholding share stays constant. This happens because cash-flow rights vary as a result of changes in the rest of the pyramid (for example, in the case of San Pedro, a wine company controlled by the Luksic family).

d. Changes in the Blockholding Share and Control

We study three dimensions that help to build a more complete picture of changes in the blockholding share. First we study whether full control was transferred in these transactions. This is quite infrequent as shown in Table 5. Only 10% of block sales and 4% of share issuances are related to the arrival of a new controlling shareholder. Similarly, in the case of increases in the blockholding share, only 10% are associated with changes in the identity of the controlling shareholder.

Second, we study whether changes in the blockholding share are associated with changes in the board of directors –in size and composition– during the subsequent year. These changes can represent strategic motives such as sealing an alliance with another family or financing partner by their incorporation into the board. We find that 65% of block sales are followed by a change in the composition of the board, and 20% by changes in its size. The numbers are smaller when dilution takes place through share issuance: only 48% of these events are followed by changes in the composition of the board, and 15% by changes in its size. This suggests that strategic motives are more common in block sales. This is not surprising given that large blocks are typically negotiated privately (see, for instance, Barclay and Holderness (1989) and Barclay and Holderness (1991)). Moreover, in the case of block sales, the average decrease in the blockholding share is 14.3%, which is precisely the amount

required to gain a seat on a typical seven-member board (14.3% = 1/7 of shares).[6] A clear example of a block sale which involved a strategic motive is given by Ripley, one of Chile's main retail stores. During the year 2009 the controlling family (brothers Alberto and Maxo Calderón Crispín) reduced their stake from 81% to 61%. The 20% block, which gives both a board seat and the right to enter a controllers' agreement, was acquired by the Saieh family. This block sale could be motivated by cash needs, although it also enables the firm to develop an integrated retail concept since the Saieh family controls a supermarket chain and there are obvious synergies between both businesses.

Finally, we look at the involvement of institutional investors in these changes in ownership structure. We focus on pension funds because, following the privatization of social security in the early 1980s, they have become the largest institutional players in the Chilean market (see, for example, pension funds in the ownership structure of CMPC in Table 1). Pension funds are arguably the market's most sophisticated investors and are seen as playing a role in monitoring companies' controllers. As a consequence, the presence of pension funds can deter controllers from managing the ownership structure of their companies opportunistically. A controller's reputation is best protected by persuading them to participate actively in the transaction at hand. We find that pension funds are indeed involved in such transactions but their participation appears to be marginal. For example, pension funds acquire on average around 15% of block sales or share issuances. Pension funds tender only 2% of the shares acquired by the controller in the case of increases in concentration.

[6] Further details on the mean and median change in the blockholding share, including positive and negative changes and, in negative changes, distinguishing between block sales and share issuance, can be found in the appendix.

4. The Ex-Ante Determinants of Ownership Dynamics

In this section we study the empirical determinants of ownership dispersion and concentration through a multivariate probit analysis. We define p_{it} as the probability that the blockholding share in firm i decreases (or increases) by more than 5% in year t. This probability is modeled as a function of the three sets of variables:

$$(2) \qquad p_{it} = \Phi\big(\alpha' \text{Ownership}_{i,t-1} + \beta' \text{Stock Market}_{i,t-1} + \gamma' \text{Firm Characteristics}_{i,t-1}\big),$$

where Φ is the cumulative standard normal distribution. It should be noted that all variables are measured one year prior to changes in ownership structure. In some specifications we also include dummy indicators for each year which summarize market-wide movements.

The first panel of Table 6 studies decreases in the blockholding share. The first column includes only ownership variables. The most interesting ownership variable for our purposes is the wedge between voting and cash-flow rights. The coefficient of -1.02 in the first column implies that an increase of ten percentage points in the wedge reduces the likelihood of ownership dilution by one percentage point (it should be remembered that the unconditional frequency of dilution events is 6%). This result can be interpreted in several complementary ways. On the one hand, pyramidal structures enable controlling shareholders to finance new investments with the retained earnings of other companies in the pyramid (Almeida and Wolfenzon (2006)). If firms controlled with a wedge need to raise equity, the controlling shareholder can easily contribute funds using the cash flows from other firms without the need to dilute her stake in the firm. Thus, we would expect to see less dilution in pyramidal structures. On the other hand, the wedge has been interpreted as a proxy of agency problems.

Under this view outside investors would be reluctant to buy shares as the interests of the controller are poorly aligned with those of investors. It is easier for controlling shareholders to sell shares up in the pyramid (where there is no wedge) rather than to sell shares in the firms at the bottom where the divergence of incentives scares away potential investors. Furthermore, the controlling shareholder may be reluctant to sell shares in firms down in the pyramid precisely because she is extracting private benefits from those firms at a relatively low personal cost. Finally, the wedge may represent ownership leverage willingly given by minority investors to a skilled large investor. Minority investors may be reluctant to dilute the holdings of the skilled shareholder, not because of agency considerations, but because they want to retain the influence of that shareholder over the firm. As the previous examples of the Matte family in CMPC or the Angelini family in Copec show, some Chilean families have been very successful in developing their businesses well beyond Chile's relatively small market. Unfortunately, our data does not allow us to discriminate between these different explanations. What is clear though is that some ownership structures are less prone to dilution than others.

Other ownership variables are also relevant predictors of dilution. As would be expected, a higher blockholding share in the previous year increases the chances of ownership dispersion this year. This implies that the effect of the wedge between voting and cash flow rights is not the same as the effect of concentration, which is better captured by this second variable. Simply put, it is not the case that there is less dilution in firms with a wedge solely because the controlling shareholder already has a low stake. We also include a dummy that takes the value of one if there was any change (positive or negative) in the ownership structure in the previous year, which captures attempts at quick rebalancing after changes in ownership. Finally, a dummy for the post-2000 period under the new securities law is not statistically significant.

The second column in Table 6 examines the impact of stock market variables on the probability of dilution. As in previous literature we focus on stock returns and turnover, which is a proxy for liquidity. The stock return of the firm in the previous year is the strongest predictor of dispersion among market variables. The coefficient of 0.17 implies that a 10% increase in returns increases the likelihood of ownership dilution by 0.14 percentage points. Idiosyncratic volatility is also a strong predictor of dispersion as some theories of optimal diversification would predict.[7] DeMarzo and Urosevic (2006) provide a supply-side explanation for ownership dilution, pointing out that the controlling shareholders of more volatile firms should be more willing to dilute in order to achieve a better diversified portfolio.

In the third column we consider firm-level characteristics. Larger firms (proxied by the log of total book assets) are less likely to experience ownership dilution. Cash flow (EBIT/sales) has a positive effect, which is opposite to the one found by Helwege, Pirinsky, and Stulz (2007) and Foley and Greenwood (2010). In those papers this variable is taken as a proxy for free cash-flow problems (Jensen (1986)). On the other hand, the positive cash-flow effect may simply signal that more profitable firms are better able to disperse ownership more quickly. This effect can also be related to the wedge between voting and cash flow rights, since Almeida and Wolfenson (2006) show that more profitable firms are positioned at the top of pyramids where the wedge is smaller. Including all variables together (column 4), adding year fixed effects (column 5), adding other control variables such as asset growth,

[7] We measure idiosyncratic volatility as the average absolute deviation of returns from the market return in the previous three years.

industry growth, or leverage, and performing robustness checks with different econometric methodologies does not change previous results in a significant way.[8]

The regressions for increases in the blockholding share (Panel B in Table 6) mirror the regressions for decreases in some respects. For example, a larger blockholding share reduces the likelihood of observing further concentration. An important difference with the case of ownership dispersion is that the wedge between voting and cash-flow rights has no predictive power. Given the many non-exclusive reasons why a wedge may deter controlling shareholders from further reducing their stake, it is far from obvious why it should prompt them to increase it. If pyramidal structures allow easily financing of new investments; or if minority investors are unwilling to sell their shares in successful businesses, why would controlling shareholders, who control their firms through pyramidal structures, be willing to further concentrate their ownership? The second important difference is the lower likelihood of concentration events as from 2001. This suggests that the law on tender offers passed in 2000 was effective in limiting concentration. This is not surprising as the law prohibits private negotiation of equity purchases that increase the blockholding share to above two-thirds. Contrary to events of dispersion, returns have no explanatory power for the frequency of concentration events.

We also explore the importance of other proxies for agency problems, more specifically, the fraction of shares held by pension funds. Pension funds are potentially good monitors given the relatively large stakes they hold. The regressions mimic those of Table 6, but now considering these new proxies for agency problems. The results (in the Appendix) show that the effect of pension funds on ownership dilution is not significantly different from zero. The

[8] Regressions with industry effects are not reported to save space. We also checked linear probability models, logit, and Gary King's rare event logic specification (http://gking.harvard.edu/stats.shtml) with results very similar to those reported for probit.

wedge between voting and cash-flow rights still appears as the main obstacle to disperse ownership. Unlike the wedge, pension funds reduce the likelihood of controlling shareholders increasing concentration.

Table 7 explores the different channels of ownership dilution. Interestingly, the wedge between voting and cash-flow rights significantly reduces the likelihood of dilution through block sales, but not through issuance. The coefficient on the wedge variable is also much larger in magnitude among block sales. On the other hand, firm-level and market-level turnover increase the likelihood of dilution through issuance, but reduce the likelihood of block sales. In other words, liquidity seems to be an incentive for issuance, but not for block sales. As we saw in Table 5, block sales are more often associated with changes in the board of directors. It is arguably harder for the controller to exploit mispricing in a situation where the other party in the transaction is also an informed shareholder with a large stake and looking to secure a seat in the board. On the contrary, it may be relatively easier to behave opportunistically in an equity issue with dispersed investors. Overall, we can say that the wedge between voting and cash flow rights is an obstacle particularly for block sales, while positive market conditions seem to be an important stimulus for big equity issuances.

5. The Aftermath of Changes in Ownership

In this final section we study whether changes in ownership have an effect on future firm outcomes. As in the related literature, we focus mostly on ownership dilution. We study real outcomes (e.g., asset growth, profitability, or control turnover) and stock returns.

a. Real Outcomes

Our main regression follows the style of Pagano, Panetta, and Zingales (1998, Table IV):

$$(3) \qquad y_{it} = \sum_{k=1}^{3} \beta_k \text{Negative Change in BHS}_{i,t-k} + \text{Fixed Effects} + \varepsilon_{it},$$

where y_{it} is the outcome of interest (e.g., asset growth) for firm *i* in year *t*. Negative Change in $\text{BHS}_{i,t-k}$ is a dummy variable equal to one if there was negative change in the blockholding share of more than 5 percentage points in year *t-k*. We explore a horizon of up to three years as in Pagano, Panetta, and Zingales (1998). The regression includes year fixed effects and firm-level fixed effects. Some regressions also include firm-level controls.

Table 8 shows that ownership dilution is not a good predictor of most common real outcomes. Dilution does not predict future asset growth, suggesting that dilution is not primarily a source of funds for new investment. Similarly, it is not a good predictor of debt growth or leverage, contradicting the idea of dilution as relaxing borrowing constraints. We also find that ROA does not decrease after dilution as the adverse selection hypothesis predicts. Thus, we can hardly argue that dilution is driven by controllers' desire to finance new investment, relax financial constraints due to recent high growth, or to incorporate new profitable businesses. For all these outcome variables the lack of predictive power of ownership dilution contrasts with the significant power of standard variables such as Tobin's Q or past leverage (see Panel B in Table 8).

In Table 8 we also explore the frequency of control transfers as a function of previous ownership dilution. The dependent variable is a dummy variable that takes the value of one if there is a change in the controller in that year.[9] In the model of Zingales (1995) controllers decide to disperse ownership without transferring control as a way to maximize the value of the company in a potential future sale. As a consequence, control transfers should be more

[9] The OLS regression with this dummy as dependent variable corresponds to a linear probability model. We obtain very similar results with probit or logit.

frequent after events of dilution. We find that this is not the case, which was expected given that transfers of control are so rare in our sample.

b. Stock Returns

In Table 9 we study the behavior of stock returns after events of dilution and concentration. We run a regression similar to (3) with annual stock returns as the dependent variable. The set of controls includes the (log) book-to-market ratio, (log) market capitalization and idiosyncratic volatility, all measured in the year before the stock return. The book-to-market ratio and market capitalization are standard controls in cross-sectional return regressions since Fama and French (1992). Ang, Hodrick, Xing, and Zhang (2006) show that idiosyncratic volatility negatively predicts returns in the U.S. Given the high volatility of emerging markets we expect this effect to be more salient in our sample. All regressions include year fixed effects.[10]

More interestingly, we find that ownership dilution (a negative change in the BHS) predicts low returns with a two-year lag. The coefficient of 0.14 implies that returns two years after dilution are 14% lower, which is a sizeable effect when compared to an average annual return of 17% in our sample (standard deviation of 57%). This evidence is consistent with the idea that controllers time the sale of ownership stakes to coincide with periods of overvalued stocks (Loughran and Ritter (1995)). Furthermore, in a related paper Larrain and Urzúa (2013) find that the effect market timing features of dilution are only present in firms that issue shares and dilute the stake of the controlling shareholder. Among all other issuances there are no features of market timing. Positive changes in the BHS do not predict high future returns. The strongest predictor of returns is the book-to-market ratio, which shows that the value premium is also present in this market. Idiosyncratic volatility has a

[10] Fama-Macbeth regressions give similar results to those reported here. The panel regression is a more efficient way of using the data given the relatively small number of cross-sections.

negative impact on returns as in Ang, Hodrick, Xing, and Zhang (2006). Size has a negative sign as expected, but is not significant.

In Table 10 we study variations in the predictability of returns according to how much control was transferred. We start by splitting events of dilution depending on whether the board of directors changes. When there is a change in the board, the dilution is most likely to correspond to a controller's sale of a stake to a relatively large shareholder or a coalition which joins forces to name a new director. Both are arguably sophisticated shareholders who, as compared to diluted shareholders, can more easily spot an opportunistic motive behind the controller's decision to dilute. However, we find that the negative effect of dilution is equally present in both types of events, with and without a change in the board, and the magnitudes are not statistically different.

The negative effect of dilution on future returns is stronger and longer-lasting when there is full control turnover. The dummy for the two-year lag of the negative change in the BHS is -0.28 when there is a control transfer and -0.13 when the same controller remains in the firm. The p-value of this difference is only 9% since there are few observations with control transfers. The three-year lag is large and significant only in the case of control transfers. These effects are not present for longer lags. The new controller may be as sophisticated as the previous controller and understand the latter's motives but still be willing to pay the premium to obtain control of the company and access to private benefits (see, for example, Urzúa (2009) for tunneling in Chilean companies). However, given the very small number of changes of control in our sample, it would be unwise to attach too much weight to this evidence.

The presence of institutional investors (pension funds), and the fact that they buy more of the ownership stake being sold by the controller, does not affect return predictability.

We test this by including interactions of the main dummy variables with the stake held by pension funds and the change in their holdings. These interactions are never significant.

In Table 11 we look at whether the predictive power of ownership dilution depends on the method of dilution. The explanatory variable is a dummy that takes the value of one if the negative change in the BHS occurred through issuance or through a block sale as defined earlier. We find that dilution through share issuance is a strong predictor of low returns, with lags of one and two years. On the other hand, block sales do not predict low returns. This is consistent with the evidence in Table 7 since dilution through issuance is preceded by high market returns and high turnover, but not dilution through block sales. The fact that share issuance has a strong predictive power as regards future returns coincides with recent cross-sectional evidence for the U.S. (Fama and French (2008), and Pontiff and Woodgate (2008)) and other markets (Maclean, Pontiff, and Watanabe (2009)).

Overall we find two main patterns in the aftermath of ownership changes. First, it is hard to see any change in real variables, such as investment, profitability, financing, or the likelihood of control turnover. Second, stock returns are significantly lower after events of dilution through share issuance.

6. Conclusions

In this paper we study ownership dynamics in a market where most firms are controlled by large shareholders, a common feature of many firms throughout the world. For this purpose we hand-assembled a 20-year database of non-financial listed firms in Chile, which provides a unique setting to study ownership dynamics given data availability and the regulatory and institutional developments that took place during the sample period (1990-2009). Our results show that both the wedge between voting and cash flow rights and market

variables are the most robust predictors of changes in the stake of the controlling shareholder. The probability of ownership dilution decreases as the wedge increases, which suggests that pyramidal structures are less prone to dilution. This could have demand or supply side explanations. On one hand, outside investors may be reluctant to buy stakes in firms with large wedges because of the misalignment between the interests of the controlling shareholder and investors, or because they do not want to reduce the influence of a skilled controlling shareholder over the firm. On the other hand, controlling shareholders may be reluctant to sell stakes in firms from which they extract large private benefits at low personal cost (i.e., firms with a large wedge), or because they can finance investment in those firms using funds from other firms inside the pyramid as suggested by Almeida and Wolfenson (2006).

Ownership dilution is preceded by high stock returns and followed by low stock returns, both of which are consistent with controlling shareholders timing the sale of large ownership stakes. Market timing is more pronounced in cases of issuance than in block sales, and does not seem to be affected by the presence of institutional investors or by simultaneous changes in the board. Whether this form of market timing is opportunistic (i.e., at the expense of less informed shareholders) or a stabilizing force against stock market bubbles is something that we cannot fully resolve with the currently available data.

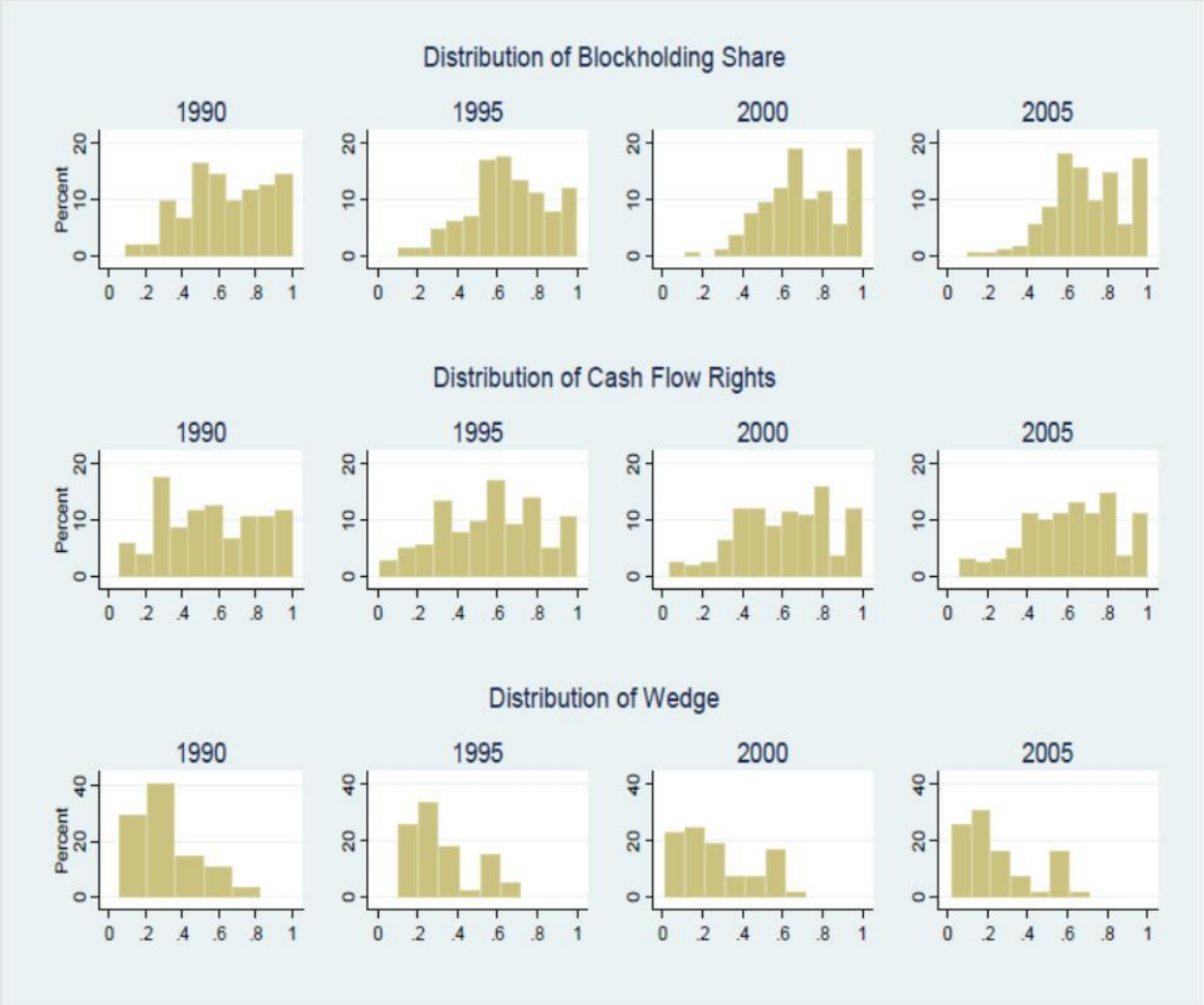

Figure 1: Distribution of the Level of Blockholding Share, Cash-Flow Rights and Wedge by Year

Blockholding share (BHS) is the fraction of voting rights held by the controlling shareholder. The upper level shows the distribution of the BHS for 1990, 1995, 2000 and 2005. Cash-flow rights is the fraction of dividends finally received by the controller. The middle panel shows the distribution of cash-flow rights for 1990, 1995, 2000 and 2005. The wedge is the difference between control and cash-flow rights. The lower panel shows the distribution of the wedge for 1990, 1995, 2000 and 2005. The sample covers all non-financial listed Chilean firms from 1990 to 2009. Data from Economatica, Fecus Plus and Superintendencia de Valores y Seguros (SVS).

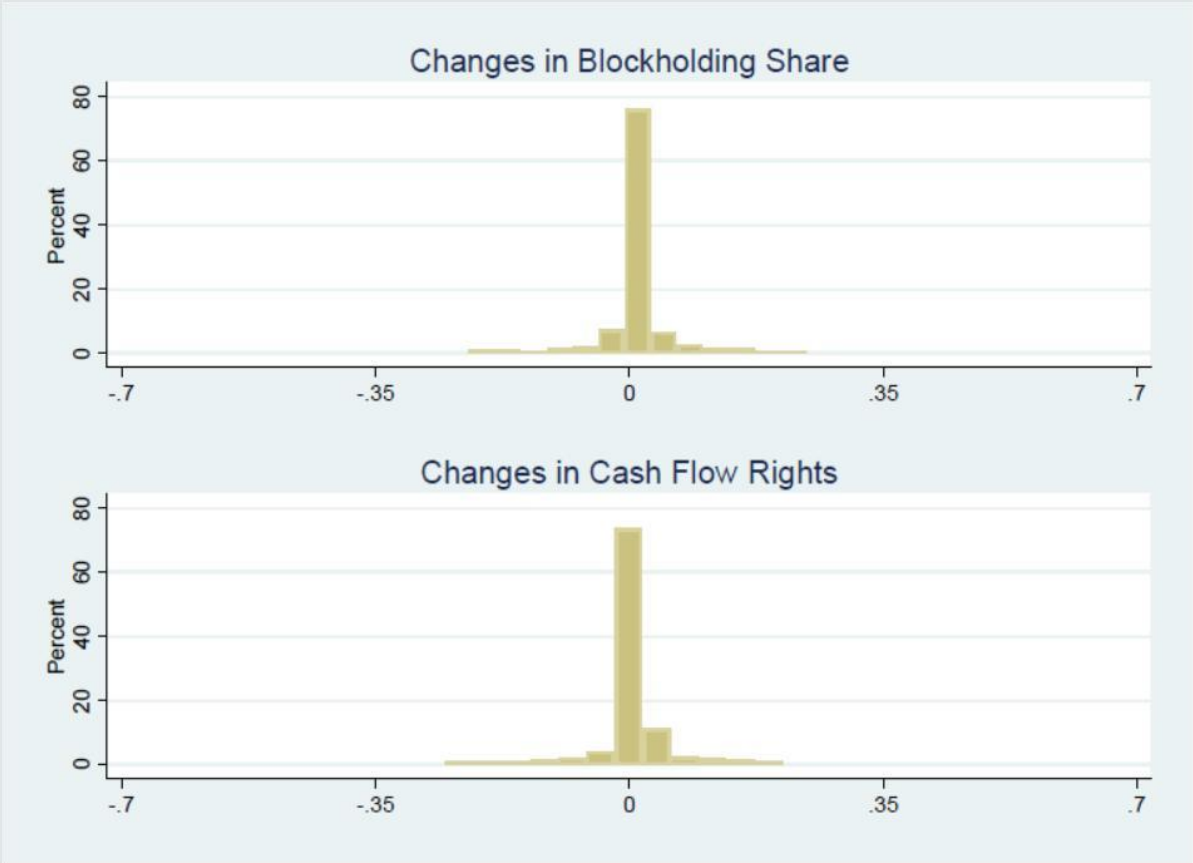

Figure 2: Distribution of Changes in the Blockholding Share and Cash-Flow Rights

Blockholding share (BHS) is the fraction of voting rights held by the controlling shareholder. The upper level shows the distribution of the percentage annual changes in the BHS for the entire sample. Cash-flow rights is the fraction of dividends received by the controller. The lower panel shows the distribution of the percentage annual changes in cash-flow rights for the entire sample. The sample covers all non-financial listed Chilean firms from 1990 to 2009. Data from Economatica, Fecus Plus and Superintendencia de Valores y Seguros (SVS).

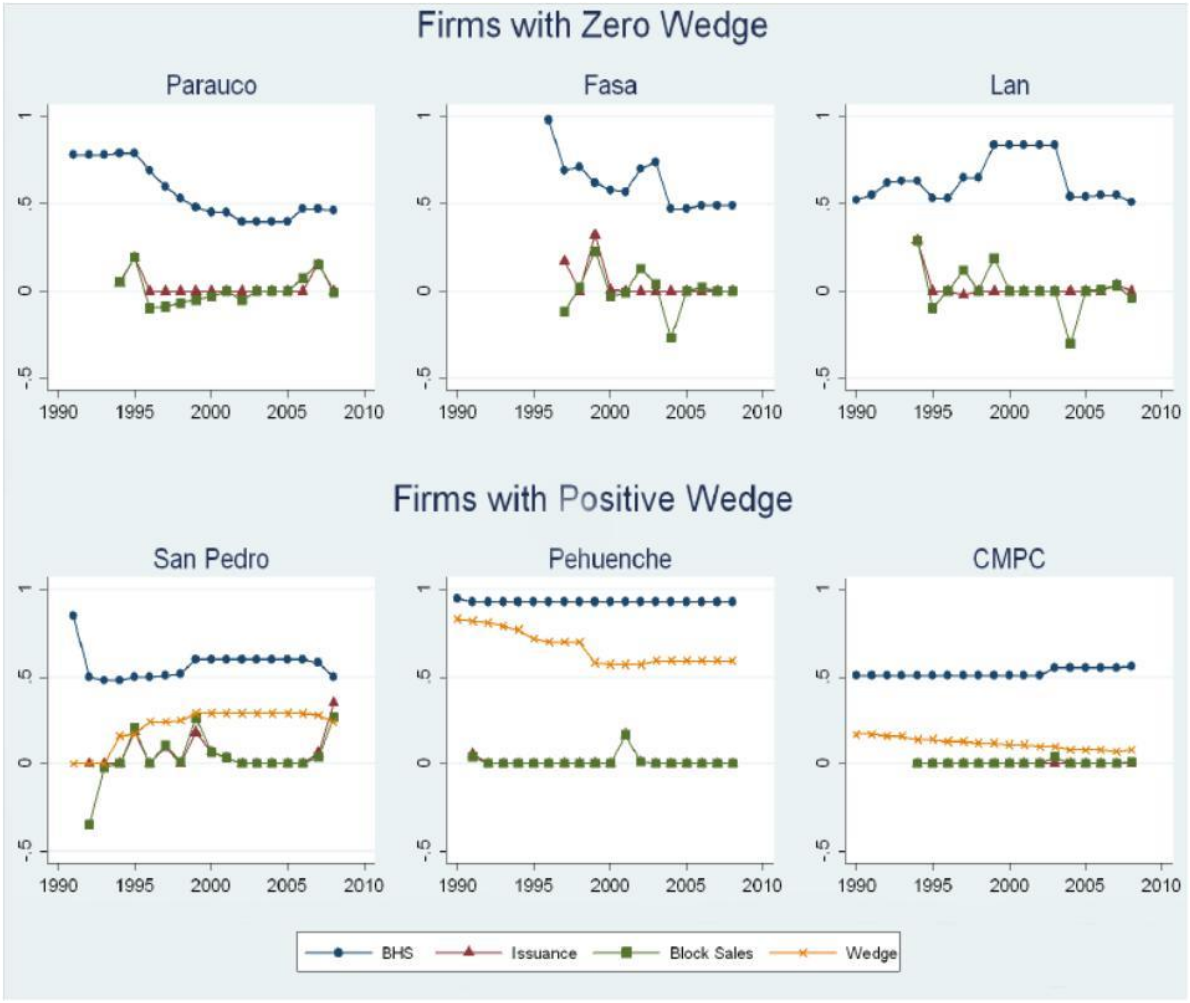

Figure 3: Blockholding Share Dynamics for Firms With and Without a Wedge

The figure shows six examples of the dynamics of changes in the blockholding share (BHS) for listed Chilean firms from 1990 to 2009. The change in the BHS can occur in two ways: a change in the fraction of voting rights held by the controlling shareholder through a block sale, or through a seasoned equity offering (SEO). The BHS is the fraction of shares held by the controlling shareholder. The wedge is the difference between control and cash-flow rights. The upper panel shows the dynamics of changes in the BHS for three firms with a zero wedge (Parque Arauco, Fasa and LAN Airlines) and the lower panel for three firms with a positive wedge (San Pedro, Pehuenche and CMPC). Data from Economatica, Fecus Plus and Superintendencia de Valores y Seguros (SVS).

Table 1: CMPC's Largest Shareholders

This table shows CMPC's ownership concentration, its controller-related shareholders and the stake of each controller-related shareholder in 1990, 2000 and 2009. CMPC is one of the largest and most emblematic Chilean companies and is controlled by the Matte family, one of the country's main business groups. Data from Economatica, Fecus Plus and Superintendencia de Valores y Seguros (SVS).

	1990	2000	2009
Matte-Related Shareholders			
Forestal Cominco S.A.	19.5%	19.5%	19.6%
Forestal Const. y Comerc. del Pacífico Sur	19.1%	19.1%	19.2%
Forestal O'Higgins S.A.	6.4%	6.9%	7.1%
Forestal Bureo S.A.	3.9%	4.0%	4.0%
Forestal Coindustria	1.8%	1.8%	1.8%
Others			4.0%
Matte's stake	50.7%	51.3%	55.8%
Others Shareholders among 12 Largest			
AFP Provida (Pension Fund)	1.0%	3.9%	2.1%
AFP Habitat (Pension Fund)		2.2%	1.8%
AFP Capital (Pension Fund)		2.1%	1.5%
Other pension funds		2.9%	
Other shareholders among 12 largest	9.7%	3.5%	8.0%
Sum of Non-Matte Shareholders among 12 largest	10.7%	14.6%	13.4%
Others	38.6%	34.1%	30.8%

Table 2: Sample Averages for Firms With and Without Ownership Wedge

This table shows means of certain variables separating firms according to whether there is a wedge in the ownership structure or not. Wedge is the difference between control and cash flow rights. Firms with positive wedges include firms in pyramids below the top position and firms with dual class shares. Blockholding share (BHS) is the fraction of shares held by the controlling shareholder. Stock returns are firm's stock returns. Log of assets is the logarithm of the book value of assets in 2008 Chilean pesos. Tobin's Q is the fraction of market value of equity plus book value of debt over book value of total assets. Leverage is defined as total liabilities over book value of assets and asset growth defined as the annual growth of book value assets. The sample covers non-financial listed Chilean firms from 1990 to 2009. Data from Economatica, Fecus Plus and Superintendencia de Valores y Seguros. Significance: *** p<0.01, ** p<0.05, * p<0.1.

	All Firms			Pyramidal Firms		
Variable	Positive Wedge	Non-Wedge	t-test	Positive Wedge	Non-Wedge	t-test
Blockholding Share	0.68	0.68	0.73	0.67	0.67	0.22
Stock Return	0.15	0.18	1.19	0.14	0.18	1.06
Stock Turnover	0.09	0.08	0.70	0.09	0.08	1.28
Log Assets	18.43	18.07	4.44***	18.74	18.42	3.58***
Tobin's Q	1.31	1.34	0.93	1.31	1.36	1.09
EBIT/Sales	0.12	0.10	1.91*	0.13	0.12	0.58
Leverage	0.37	0.37	0.44	0.36	0.32	3.82***
Asset Growth	0.08	0.10	1.63	0.08	0.10	1.53

Table 3 Panel A: Descriptive Statistics for Blockholding Share, Cash-Flow Rights and Changes in Blockholding Share

Mean and median levels of blockholding share (BHS) and cash-flow rights for each year. BHS is the fraction of shares held by the controlling shareholder. Cash-flow rights are the fraction of dividends received by the controlling shareholder. Negative (positive) changes are defined as a decrease (increase) of 5 percentage points or more in the BHS in a year. The sample covers non-financial listed Chilean firms from 1990 to 2009. Data from Economatica, Fecus Plus and Superintendencia de Valores y Seguros (SVS).

Year	Blockholding Share		Cash Flow Rights		Negative Change in BHS		Positive Change in BHS	
	Mean	Median	Mean	Median	Number of Firms	Fraction of Firms	Number of Firms	Fraction of Firms
1990	0.63	0.61	0.56	0.56				
1991	0.65	0.65	0.57	0.57	6	0.06	6	0.06
1992	0.66	0.67	0.58	0.59	14	0.12	11	0.10
1993	0.65	0.67	0.57	0.59	18	0.14	8	0.06
1994	0.65	0.64	0.56	0.59	13	0.09	7	0.05
1995	0.65	0.65	0.57	0.60	9	0.06	10	0.07
1996	0.66	0.65	0.57	0.59	11	0.07	10	0.07
1997	0.66	0.65	0.57	0.60	12	0.08	18	0.11
1998	0.68	0.67	0.59	0.60	5	0.03	19	0.12
1999	0.69	0.68	0.61	0.62	10	0.06	23	0.14
2000	0.70	0.69	0.61	0.63	3	0.02	18	0.11
2001	0.70	0.70	0.62	0.64	8	0.05	7	0.04
2002	0.71	0.71	0.63	0.65	3	0.02	11	0.07
2003	0.71	0.71	0.63	0.64	2	0.01	4	0.02
2004	0.70	0.70	0.62	0.63	19	0.12	13	0.08
2005	0.70	0.70	0.61	0.62	6	0.04	1	0.01
2006	0.70	0.71	0.62	0.62	5	0.03	6	0.04
2007	0.68	0.70	0.59	0.61	11	0.07	1	0.01
2008	0.68	0.68	0.60	0.61	4	0.02	7	0.04
2009	0.68	0.67	0.59	0.61	4	0.03	9	0.06
All	**0.68**	**0.68**	**0.59**	**0.61**	**163**	**0.06**	**189**	**0.07**

Table 3 - continued

Panel B: Changes in Blockholding Share by Industry and Year

Negative change in BHS (number of firms)

Industry	1990-1994	1995-1999	2000-2004	2005-2009	Full Sample (%)
NAICS 1 (Agriculture and forestry)	0	1	1	0	0.01
NAICS 2 (Mining, utilities and construction)	7	5	1	8	0.13
NAICS 3 (Manufacturing)	26	14	12	11	0.39
NAICS 4 (Retail and wholesale trade)	5	7	3	5	0.12
NAICS 5 (Information, finance and others)	13	20	17	5	0.34
NAICS 6 (Educational and health services)	0	0	1	1	0.01
NAICS 7 (Recreation and accomodation)	0	0	0	0	0.00
Full Sample (%)	0.31	0.29	0.21	0.18	1

Positive change in BHS (number of firms)

Industry	1990-1994	1995-1999	2000-2004	2005-2009	Full Sample (%)
NAICS 1 (Agriculture and forestry)	2	0	1	0	0.02
NAICS 2 (Mining, utilities and construction)	9	19	11	4	0.23
NAICS 3 (Manufacturing)	4	25	17	7	0.28
NAICS 4 (Retail and wholesale trade)	4	6	6	2	0.10
NAICS 5 (Information, finance and others)	13	26	17	9	0.35
NAICS 6 (Educational and health services)	0	3	1	1	0.03
NAICS 7 (Recreation and accomodation)	0	0	0	1	0.01
Full Sample (%)	0.17	0.42	0.28	0.13	1

Table 4: Fraction of Firms Experiencing Changes in the Blockholding Share (BHS) Conditional on the Wedge Between Control and Cash Flow Rights

This table shows the fraction of firms that experience a negative (positive) change in the level of blockholding share (BHS) each year conditional on the wedge, which is defined as the difference between control and cash-flow rights and is lagged by one period. Negative (positive) changes are defined as a decrease (increase) of 5 percentage points or more in the BHS in a typical year. Negative changes are further disaggregated into block sale and share issuance. The change in BHS occurs through share issuance if issuance is a positive amount; otherwise it is considered a block sale. The sample covers non-financial listed Chilean firms from 1990 to 2009. Data from Economatica, Fecus Plus and Superintendencia de Valores y Seguros (SVS).

Year	Negative Changes in BHS						Positive Changes in BHS	
	No Wedge	Positive Wedge	Negative Change in BHS through Block		Negative Change in BHS through Share		No Wedge	Positive Wedge
			No Wedge	Positive Wedge	No Wedge	Positive Wedge		
1991	0.06	0.04	0.03	0.00	0.04	0.04	0.06	0.04
1992	0.13	0.10	0.05	0.03	0.09	0.06	0.09	0.13
1993	0.18	0.03	0.04	0.03	0.14	0.00	0.04	0.12
1994	0.11	0.06	0.05	0.03	0.06	0.03	0.05	0.06
1995	0.07	0.05	0.02	0.00	0.05	0.05	0.08	0.05
1996	0.09	0.02	0.03	0.00	0.06	0.02	0.08	0.02
1997	0.11	0.00	0.05	0.00	0.05	0.00	0.11	0.13
1998	0.05	0.00	0.03	0.00	0.02	0.00	0.11	0.14
1999	0.08	0.02	0.04	0.02	0.04	0.00	0.14	0.14
2000	0.03	0.00	0.03	0.00	0.00	0.00	0.10	0.13
2001	0.06	0.02	0.05	0.02	0.01	0.00	0.04	0.05
2002	0.02	0.02	0.01	0.02	0.01	0.00	0.08	0.04
2003	0.02	0.00	0.02	0.00	0.00	0.00	0.04	0.00
2004	0.18	0.00	0.15	0.00	0.03	0.00	0.11	0.04
2005	0.05	0.00	0.01	0.00	0.04	0.00	0.01	0.00
2006	0.05	0.00	0.04	0.00	0.01	0.00	0.04	0.04
2007	0.10	0.02	0.04	0.02	0.06	0.00	0.01	0.00
2008	0.03	0.02	0.02	0.00	0.01	0.02	0.05	0.03
2009	0.04	0.00	0.00	0.00	0.04	0.00	0.06	0.05
All	**0.07**	**0.02**	**0.04**	**0.01**	**0.04**	**0.01**	**0.07**	**0.06**

Table 5: Changes in the Blockholding Share and Control

This table presents some reasons why controlling shareholders decrease (increase) their blockholding share (BHS) by 5 percentage points or more in a year. The table analyzes changes in the BHS due to: a) the controlling shareholder invites other shareholders into the company and allows them to join the board within the year subsequent to the change in the BHS; b) changes in the controlling shareholder the same year or the year before the change in the BHS; c) pension funds' activity in the same year as the change in the BHS. The sample covers non-financial listed Chilean firms from 1990 to 2009. Data from Economatica, Fecus Plus and Superintendencia de Valores y Seguros (SVS).

Negative Changes in the BHS		
Negative Change in BHS through Block Sale (79 in total)		
Changes in board structure	Changes in board size in (t) and (t + 1)	16 (20.3%)
	Changes in board composition in (t) and (t +1)	51 (64.6%)
Change in controlling shareholder in (t - 1) and (t)	6 out of 79 (10.1%)	
Pension fund involvement	Acquire 15.6% of the block sale	
Negative Change in BHS through Share Issuance (84 in total)		
Changes in board structure	Changes in board size in (t) and (t + 1)	13 (15.5%)
	Changes in board composition in (t) and (t +1)	40 (47.6%)
Change in controlling shareholder in (t - 1) and (t)	2 (3.6%)	
Pension fund involvement	Acquire 14.8% of the share issuance	
Positive Changes in the BHS (189 in total)		
Change in controlling shareholder in (t - 1) and (t)	18 (9.5%)	
Pension fund involvement	Sell 2.0% of all the new shares being acquired by the controlling shareholder	

Table 6: Probit Regressions for Changes in the Blockholding Share (BHS)

A negative (positive) change is defined as a decrease (increase) of 5 percentage points or more in the blockholding share (BHS) in a year. Panel A shows a probit model with robust standard errors model for instances of negative changes in the BHS. Panel B shows a probit model with robust standard errors model for instances of positive changes in the BHS. Independent variables include the difference between control and cash flow rights the previous year (wedge); the fraction of shares held by the controlling shareholder the previous year (blockholding share); change in blockholding share is a dummy equal to 1 if the firm experienced a negative (positive) change the previous year. Market variables include firm and market returns and turnover over the previous year, idiosyncratic volatility the previous year and a dummy that takes the value of 1 after the year 2000 when the law on tender offers was passed. Firm characteristics include (all lagged one period): the logarithm of the book value of assets in 2008 Chilean pesos; book-to-market equity ratio (B/M); free cash flow defined as EBIT over sales; leverage defined as total liabilities over book value of assets and asset growth defined as the annual growth of book value assets. The sample covers non-financial listed Chilean firms from 1990 to 2009. Data from Economatica, Fecus Plus and Superintendencia de Valores y Seguros.

Panel A: Dependent Variable: Negative Change in BHS

Variable					
Wedge (t - 1)	-1.02**			-1.77***	-1.79***
	(0.452)			(0.627)	(0.622)
Blockholding Share (t - 1)	0.65**			0.87*	0.86*
	(0.278)			(0.458)	(0.466)
Change in Blockholding Share dummy (t - 1)	0.43***			0.40**	0.52***
	(0.121)			(0.167)	(0.177)
2000 Law Dummy	-0.12			0.05	
	(0.090)			(0.178)	
Stock Return (t - 1)		0.17**		0.16*	0.25**
		(0.084)		(0.091)	(0.118)
Market Return (t - 1)		0.25		0.34	
		(0.293)		(0.328)	
Stock Turnover (t - 1)		0.11		0.86**	0.75**
		(0.397)		(0.370)	(0.366)
Market Turnover (t - 1)		-0.58		-0.90	
		(1.075)		(1.285)	
Idiosyncratic volatility (t - 1)		0.44**		0.39*	0.43*
		(0.209)		(0.227)	(0.245)
Log Assets (t - 1)			-0.08**	-0.08*	-0.09*
			(0.035)	(0.048)	(0.050)
B/M (t - 1)			-0.01	0.04	0.05
			(0.050)	(0.045)	(0.047)
EBIT/Sales (t - 1)			0.54***	0.66**	0.66***
			(0.170)	(0.261)	(0.253)
Leverage (t - 1)			0.60*	0.49	0.53
			(0.308)	(0.385)	(0.401)
Asset Growth (t - 1)			0.45***	0.02	-0.02
			(0.162)	(0.246)	(0.235)
Year Fixed Effect	No	No	No	No	Yes
Observations	2,620	1,577	2,118	1,453	1,453
Number of firm_number	180	149	164	144	144

Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 6 - continued

Panel B: Dependent Variable: Positive Change in BHS

Variable					
Wedge (t - 1)	0.35			0.12	0.13
	(0.280)			(0.326)	(0.343)
Blockholding Share (t - 1)	-1.32***			-1.28***	-1.40***
	(0.188)			(0.286)	(0.310)
Change in Blockholding					
Share dummy (t - 1)	0.21*			0.23	0.24
	(0.121)			(0.158)	(0.161)
2000 Law Dummy	-0.34***			-0.38***	
	(0.077)			(0.118)	
Stock Return (t - 1)		-0.02		0.17	0.13
		(0.111)		(0.125)	(0.133)
Market Return (t - 1)		-0.19		-0.31	
		(0.226)		(0.257)	
Stock Turnover (t - 1)		0.80***		0.10	0.22
		(0.274)		(0.382)	(0.407)
Market Turnover (t - 1)		-2.63***		-0.84	
		(0.771)		(0.875)	
Idiosyncratic volatility (t - 1)		-0.14		-0.33	-0.11
		(0.231)		(0.254)	(0.243)
Log Assets (t - 1)			-0.05*	-0.09***	-0.10***
			(0.026)	(0.032)	(0.034)
B/M (t - 1)			0.01	0.04	0.01
			(0.031)	(0.037)	(0.043)
EBIT/Sales (t - 1)			-0.12	-0.05	0.01
			(0.116)	(0.121)	(0.116)
Leverage (t - 1)			0.24	0.60*	0.47
			(0.269)	(0.332)	(0.332)
Asset Growth (t - 1)			-0.03	-0.38	-0.29
			(0.190)	(0.276)	(0.279)
Year Fixed Effect	No	No	No	No	Yes
Observations	2,620	1,577	2,118	1,453	1,453
Number of firm_number	180	149	164	144	144

Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 7: Probit Regressions for Change in the Blockholding Share through Block Sale or Share Issuance

Table 7 shows a probit model with robust standard errors for cases of negative changes in the blockholding share (BHS), distinguishing between share issuance and block sale. Negative changes are defined as a decrease of 5 percentage points or more in the BHS in a year. The change in the BHS occurs through share issuance if issuance is a positive amount; otherwise it is considered a block sale. Panels A and B show negative changes in the BHS through block sales and share issuance, respectively. Independent variables are ownership characteristics (all lagged by one period): the proportion of shares in the firm held by pension funds (Pension Funds); the difference between control and cash-flow rights (wedge); and the fraction of shares held by the controlling shareholder (the blockholding share); change in the BHS is a dummy equal to 1 if the firm experienced a negative (positive) change. Market variables include firm and market returns and turnover in the previous year, idiosyncratic volatility in the previous year and a dummy that takes the value of 1 after 2000 when a new law on tender offers was passed. Firm characteristics (all lagged by one period) are the logarithm of the book value of assets in 2008 expressed in Chilean pesos; book-to-market equity ratio (B/M); free cash flow defined as EBIT over sales; leverage defined as total liabilities over book value of assets; and asset growth defined as the annual growth of book value assets. The sample covers non-financial listed Chilean firms from 1990 to 2009. Data from Economatica, Fecus Plus and Superintendencia de Valores y Seguros (SVS).

Negative Change in BHS						
Variable	Through Block Sale			Through Share Issuance		
Wedge (t - 1)	-2.45**		-2.42**	-0.67		-0.47
	(1.135)		(1.123)	(0.658)		(0.615)
Pension funds (t - 1)		-1.03	-0.40		-3.25	-2.90
		(1.029)	(1.007)		(1.980)	(2.033)
Blockholding Share (t - 1)	0.66	0.36	0.61	0.70	0.22	0.39
	(0.479)	(0.540)	(0.533)	(0.576)	(0.594)	(0.660)
Change in Blockholding Share dummy (t - 1)	0.40**	0.38*	0.39*	0.54**	0.49*	0.51*
	(0.200)	(0.199)	(0.202)	(0.261)	(0.282)	(0.272)
2000 Law Dummy	0.12	0.11	0.11	-0.06	-0.02	-0.06
	(0.229)	(0.219)	(0.228)	(0.243)	(0.227)	(0.236)
Stock Return (t - 1)	0.11	0.11	0.11	0.16	0.17	0.16
	(0.105)	(0.097)	(0.105)	(0.143)	(0.148)	(0.150)
Market Return (t - 1)	0.29	0.34	0.30	0.65	0.67*	0.68*
	(0.390)	(0.380)	(0.389)	(0.404)	(0.382)	(0.410)
Stock Turnover (t - 1)	-0.02	-0.08	0.03	1.29***	1.28***	1.42***
	(0.505)	(0.471)	(0.510)	(0.364)	(0.338)	(0.359)
Market Turnover (t - 1)	-3.38**	-3.27**	-3.43**	3.46*	3.07*	3.38*
	(1.318)	(1.314)	(1.342)	(1.873)	(1.789)	(1.895)
Idiosyncratic volatility (t - 1)	0.19	0.23	0.18	0.66**	0.52*	0.59**
	(0.285)	(0.288)	(0.288)	(0.284)	(0.307)	(0.295)
Log Assets (t - 1)	-0.05	-0.04	-0.04	-0.10	-0.08	-0.06
	(0.056)	(0.060)	(0.057)	(0.064)	(0.065)	(0.067)
B/M (t - 1)	0.03	0.03	0.03	0.02	-0.00	0.00
	(0.049)	(0.049)	(0.049)	(0.059)	(0.061)	(0.062)
EBIT/Sales (t - 1)	0.76**	0.62*	0.76**	0.44**	0.51**	0.49**
	(0.387)	(0.371)	(0.382)	(0.204)	(0.215)	(0.212)
Leverage (t - 1)	0.58	0.75*	0.59	0.18	0.81	0.30
	(0.441)	(0.437)	(0.435)	(0.407)	(0.514)	(0.413)
Asset Growth (t - 1)	-0.16	-0.20	-0.17	0.16	0.12	0.10
	(0.449)	(0.384)	(0.445)	(0.152)	(0.156)	(0.150)
Constant	-1.45	-1.63	-1.50	-2.23*	-2.30*	-2.57**
	(1.234)	(1.326)	(1.213)	(1.265)	(1.214)	(1.208)
Observations	1435	1439	1435	1417	1422	1417

*** p< 0.01, ** p< 0.05, * p< 0.1. Robust standard errors in parentheses.

Table 8: Changes in the Blockholding Share and Firms' Future Outcomes

Panel OLS with robust and firm-clustered standard errors regressions for growth in total assets, growth in debt, leverage, return on assets (ROA) and control transfers. Panel A shows regressions on asset growth, debt growth, leverage and control transfers on changes in the blockholding share (BHS) without considering ownership, firm and market controls. Panel B shows regressions on asset growth, debt growth, leverage and control transfers when considering ownership, firm and market controls. Dependent variables are measured in real terms, except for control transfers which is a dummy that takes the value of 1 when there is a change in controlling shareholder. Independent variables include ownership variables (all lagged by one or more periods): negative change defined as a decrease of 5 percentage points or more in the BHS in a year; the difference between control and cash-flow rights (wedge); and the fraction of shares held by the controlling shareholder (blockholding share). Market variables (all lagged by one period) include firm returns and the fraction of market value of equity plus book value of debt over book value of total assets (Tobin's Q). Firm variables (all lagged by one period) include the logarithm of the book value of assets in 2008 expressed in Chilean pesos; free cash flow defined as EBIT over sales; leverage defined as total liabilities over book value of assets; and asset growth defined as the annual growth of book value assets. Year and firm fixed-effect dummies are added as shown in the Table. The sample covers non-financial listed Chilean firms from 1990 to 2009. Data from Economatica, Fecus Plus and Superintendencia de Valores y Seguros (SVS).

Panel A: Negative Changes in the BHS and Future Firms' Ouctomes

Variable	Asset Growth	Debt Growth	Leverage	Return on Assets	Control Transfer	Asset Growth	Debt Growth	Leverage	Return on Assets	Control Transfer
Negative Change in BHS										
(t - 1)	0.013	0.05	0.04**	0.01	0.02	-0.00	0.11	-0.00	0.01	0.01
	(0.03)	(0.15)	(0.02)	(0.01)	(0.02)	(0.03)	(0.17)	(0.01)	(0.01)	(0.02)
Negative Change in BHS										
(t - 2)	0.02	-0.14**	0.04**	0.02	-0.00	0.01	-0.08	-0.01	0.01	-0.01
	(0.03)	(0.07)	(0.02)	(0.01)	(0.01)	(0.03)	(0.06)	(0.01)	(0.01)	(0.02)
Negative Change in BHS										
(t - 3)	-0.01	-0.13*	0.04*	0.01	0.00	-0.02	-0.05	-0.01	0.01	-0.00
	(0.03)	(0.07)	(0.02)	(0.01)	(0.01)	(0.03)	(0.08)	(0.01)	(0.01)	(0.01)
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm fixed effects	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes
Observations	2091	2230	2092	2092	2357	2091	2230	2092	2092	2357

*** p< 0.01, ** p< 0.05, * p< 0.1. Robust and firm-clustered standard errors in parentheses.

Table 8 - continued

Panel B: Negative Changes in the BHS and Future Firms' Outcomes when Considering Controls

Variable	Asset Growth	Debt Growth	Leverage	Return on Assets	Control Transfer
Negative Change in BHS (t - 1)	-0.01	0.10	0.01	-0.00	-0.00
	(0.03)	(0.15)	(0.01)	(0.01)	(0.01)
Negative Change in BHS (t - 2)	-0.00	0.01	0.02*	0.00	0.01
	(0.03)	(0.06)	(0.01)	(0.01)	(0.02)
Negative Change in BHS (t - 3)	-0.02	-0.08	-0.01	0.01	0.00
	(0.03)	(0.06)	(0.01)	(0.01)	(0.01)
Wedge (t - 1)	-0.05*	-0.17	-0.04***	0.04	0.04
	(.03)	(0.15)	(0.01)	(0.03)	(0.03)
Blockholding Share (t - 1)	-0.09**	-0.16	-0.01	-0.01	0.01
	(0.04)	(0.14)	(0.01)	(0.04)	(0.02)
Stock Return (t - 1)	0.02	0.03	-0.01	0.01	0.01
	(0.01)	(0.06)	(0.01)	(0.01)	(0.01)
Tobin's Q (t - 1)	0.02*	0.5*	0.01**	0.02	-0.00
	(0.01)	(0.03)	(0.00)	(0.02)	(0.00)
Log Assets (t - 1)	0.01	0.02	0.00	-0.00	0.00
	(0.00)	(0.02)	(0.00)	(0.00)	(0.00)
EBIT/Sales (t - 1)	-0.01	-0.27*	-0.01	0.12***	0.01**
	(0.03)	(0.15)	(0.01)	(0.04)	(0.00)
Leverage (t - 1)	-0.16***	-1.37***	0.91***	-0.08*	0.04**
	(0.04)	(0.26)	(0.02)	(0.04)	(0.02)
Asset Growth (t - 1)	0.07**	0.12**	0.00	0.01	0.01
	(0.03)	(0.06)	(0.01)	(0.01)	(0.02)
Year fixed effects	Yes	Yes	Yes	Yes	Yes
Observations	1484	1484	1484	1484	1487

*** p< 0.01, ** p< 0.05, * p< 0.1. Robust and firm-clustered standard errors in parentheses.

Table 9: Changes in the Blockholding Share and Future Returns

Panel OLS regressions with robust and yearly-clustered standard errors for stock returns on ownership and firm variables. Independent variables are negative changes in the blockholding share (BHS) in up to the three previous years, with negative change defined as a decrease of 5 percentage points or more in the BHS in a year; idiosyncratic volatility in the previous year; logarithm of the book-to-market equity ratio in the previous year (B/M); and the of the firm's total market value in the previous year (Firm Market Value). Year fixed effects are also included. The sample covers non-financial listed Chilean firms from 1990 to 2009. Data from Economatica, Fecus Plus and Superintendencia de Valores y Seguros (SVS).

Variable									
Negative Change in BHS (t - 1)		-0.06			-0.03				
		(0.033)			(0.028)				
Negative Change in BHS (t - 2)			-0.14***		-0.13***				
			(0.034)		(0.037)				
Negative Change in BHS (t - 3)				-0.05	-0.04				
				(0.043)	(0.045)				
Positive Change in BHS (t - 1)						-0.02			-0.02
						(0.049)			(0.050)
Positive Change in BHS (t - 2)							-0.01		-0.01
							(0.048)		(0.051)
Positive Change in BHS (t - 3)								0.01	0.01
								(0.051)	(0.050)
Idiosyncratic Volatility (t - 1)	-0.09**	-0.08*	-0.08*	-0.09*	-0.07	-0.08*	-0.09*	-0.09*	-0.08*
	(0.040)	(0.043)	(0.041)	(0.042)	(0.043)	(0.044)	(0.041)	(0.042)	(0.044)
B/M (in log) (t - 1)	0.09**	0.08**	0.08**	0.08**	0.08**	0.08**	0.08**	0.08**	0.08**
	(0.036)	(0.037)	(0.037)	(0.036)	(0.037)	(0.037)	(0.037)	(0.036)	(0.037)
Firm Market Value (in log) (t - 1)	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02
	(0.013)	(0.013)	(0.013)	(0.013)	(0.013)	(0.013)	(0.013)	(0.013)	(0.013)
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,436	1,417	1,418	1,419	1,413	1,417	1,418	1,419	1,413
R-squared	0.284	0.280	0.283	0.281	0.284	0.280	0.280	0.280	0.280

Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 10: Future Returns on Negative Changes in Blockholding Share and Changes in Board, Controlling Shareholder and Pension Funds

Panel OLS regressions with robust and yearly-clustered standard errors for stock returns on the interaction between negative changes in the blockholding share (BHS) and changes in the board, controlling shareholder, and pension funds in up to the three previous years. Panel A shows the interaction between negative changes in the BHS and changes in the board and controlling shareholder where change in board and controlling shareholder are dummy variables that take the value of 1 if there is a change in board composition or controlling shareholder along with the negative change in the BHS. Panel B shows the interaction between negative changes in the BHS and changes in pension funds, including changes in both the latter's overall stake (pension funds) and its distribution among different pension funds (change in pension funds). Negative changes in the BHS are defined as a decrease of 5 percentage points or more in the BHS in a year. Other independent variables (all lagged by one period) are idiosyncratic volatility; the logarithm of the book-to-market equity ratio (B/M); and the logarithm of the firm's total market value (Firm Market Value). Year fixed effects are also included. The results of T tests are presented at the bottom of the table, showing whether the indicated pairs of variables are equal or not. The sample covers non-financial listed Chilean firms from 1990 to 2009. Data from Economatica, Fecus Plus and Superintendencia de Valores y Seguros (SVS).

Panel A: Future Returns on Negative Changes in BHS and Changes in Board/Controlling Shareholder

Future Returns on Negative Changes and Board Changes		Future Returns on Negative Changes and Changes in Controlling Shareholder	
(1) Negative Change in BHS X Board Change (t - 1)	-0.05	(1) Negative Change in BHS X Change in Controller (t - 1)	0.08
	(0.05)		(0.10)
(2) Negative Change in BHS X No Board Change (t - 1)	-0.01	(2) Negative Change in BHS X No Change in Controller (t - 1)	-0.04
	(0.07)		(0.03)
(3) Negative Change in BHS X Board Change (t - 2)	-0.12**	(3) Negative Change in BHS X Change in Controller (t - 2)	-0.28***
	(0.05)		(0.07)
(4) Negative Change in BHS X No Board Change (t - 2)	-0.16**	(4) Negative Change in BHS X No Change in Controller (t - 2)	-0.13***
	(0.06)		(0.04)
(5) Negative Change in BHS X Board Change (t - 3)	-0.03	(5) Negative Change in BHS X Change in Controller (t - 3)	-0.30**
	(0.06)		(0.13)
(6) Negative Change in BHS X No Board Change (t - 3)	-0.04	(6) Negative Change in BHS X No Change in Controller (t - 3)	-0.03
	(0.05)		(0.05)
(7) Idiosyncratic Volatility (t - 1)	-0.07	(7) Idiosyncratic Volatility (t - 1)	-0.08
	(0.04)		(0.04)
(8) B/M (in log) (t - 1)	0.08**	(8) B/M (in log) (t - 1)	0.08**
	(0.04)		(0.04)
(9) Firm Market Value (in log) (t -1)	-0.02	(9) Firm Market Value (in log) (t -1)	-0.02
	(0.01)		(0.01)
Year fixed effects	Yes	Year fixed effects	Yes
Observations	1413	Observations	1413
T Tests		T Tests	
(1) = (2); P-value = 0.76		(1) = (2); P-value = 0.28	
(3) = (4); P-value = 0.60		(3) = (4); P-value = 0.09	
(5) = (6); P-value = 0.93		(5) = (6); P-value = 0.07	

*** p< 0.01, ** p< 0.05, * p< 0.1. Robust and yearly-clustered standard errors in parentheses.

Table 10 - continued

Panel B: Future Returns on Negative Changes in Blockholding Share and Changes in Pension Funds

Future Returns on Negative Changes and Pension Funds' Holdings		Future Returns on Negative Changes and Changes in Pension Funds' Holdings	
Negative Change in BHS (t - 1)	-0.03	Negative Change in BHS (t - 1)	-0.03
	(0.04)		(0.03)
Negative Change in BHS X Pension Funds (t - 1)	-0.12	Negative Change in BHS X Changes in Pension Funds (t - 1)	-0.98
	(0.53)		(2.00)
Negative Change in BHS (t - 2)	-0.13***	Negative Change in BHS (t - 2)	-0.14***
	(0.04)		(0.04)
Negative Change in BHS X Pension Funds (t - 2)	-0.02	Negative Change in BHS X Changes in Pension Funds (t - 2)	0.35
	(0.31)		(0.53)
Negative Change in BHS (t - 3)	-0.02	Negative Change in BHS (t - 3)	-0.04
	(0.05)		(0.05)
Negative Change in BHS X Pension Funds (t - 3)	-0.29	Negative Change in BHS X Changes in Pension Funds (t - 3)	-0.09
	(0.21)		(0.27)
Idiosyncratic Volatility (t - 1)	-0.07	Idiosyncratic Volatility (t - 1)	-0.07
	(0.04)		(0.04)
B/M (in log) (t - 1)	0.08**	B/M (in log) (t - 1)	0.08**
	(0.04)		(0.04)
Firm Market Value (in log) (t -1)	-0.02	Firm Market Value (in log) (t -1)	-0.02
	(0.01)		(0.01)
Year fixed effects	Yes	Year fixed effects	Yes
Observations	1413	Observations	1413

*** p< 0.01, ** p< 0.05, * p< 0.1. Robust and yearly-clustered standard errors in parentheses.

Table 11: Future Returns on Negative Change in the Blockholding Share through Block Sale and Share Issuance

Panel OLS regressions with robust and yearly-clustered standard errors for stock returns on negative changes in blockholding share (BHS) in up to the three previous years, distinguishing between share issuance and block sale. Negative changes in the BHS are defined as a decrease of 5 percentage points or more in a year. Share issuance occurs through an issuance if issuance is a positive amount; otherwise, it is considered a block sale. Other independent variables (all lagged by one period) are idiosyncratic volatility; the logarithm of the book-to-market equity ratio (B/M); and the logarithm of the firm's total market value (Firm Market Value). Year fixed effects are also included. The sample covers non-financial listed Chilean firms from 1990 to 2009. Data from Economatica, Fecus Plus and Superintendencia de Valores y Seguros (SVS).

Variable								
Negative Change in BHS through Share Issuance (t - 1)	-0.16***			-0.13**				
	(0.05)			(0.05)				
Negative Change in BHS through Share Issuance (t - 2)		-0.24***		-0.23***				
		(0.05)		(0.05)				
Negative Change in BHS through Share Issuance (t - 3)			-0.04	-0.03				
			(0.06)	(0.06)				
Negative Change in BHS through Block Sale (t - 1)					0.01			0.03
					(0.04)			(0.04)
Negative Change in BHS through Block Sale (t - 2)						-0.09		-0.08
						(0.05)		(0.05)
Negative Change in BHS through Block Sale (t - 3)							-0.05	-0.05
							(0.06)	(0.06)
Idiosyncratic Volatility (t - 1)	-0.08*	-0.08*	-0.09*	-0.06	-0.09*	-0.09*	-0.09*	-0.08*
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
B/M (in log) (t - 1)	0.08**	0.09**	0.08**	0.09**	0.08**	0.08**	0.08**	0.08**
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
Firm Market Value (in log) (t - 1)	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1417	1418	1419	1413	1417	1418	1419	1413

*** p< 0.01, ** p< 0.05, * p< 0.1. Robust and yearly-clustered standard errors in parentheses.

7. Appendix

a. Ownership Structures in Chile

As several examples in the paper show (Quiñenco, Copec, Santa Rita), the use of pyramids is well extended in Chile. Table A1 shows the number of firms controlled through pyramids or multiple-class shares in Chile. Furthermore, it shows how many firms are in each row of the pyramid. In the paper we provide some details about who controls Chilean firms. Table A2 extends this analysis and shows the number of firms controlled by families, multiple blocks, individuals, the state, and finally, by foreign firms.

b. Changes in the Blockholding Share

Complementing our analysis in Tables 3 and 4 in the main text, Table A3 in this appendix shows the mean and median change in the blockholding share for events of dilution and concentration in the blockholding share.

c. Tests with Alternative Proxies for Agency Problems

As in Table 6 in the main text, in Table A4 we model the probability of further diluting (concentrating) the blockholding share by more than 5%. We now consider the presence of pension funds as shareholders as another proxy for (reduced) agency problems.

d. Further Statistics on the Wedge

Table A5 provides further statistics on the wedge. First, I show the average wedge according to the identity of the controlling shareholder, as described in Table A2. Then in Table A6 I replicate Table 4 from the paper but now focusing only on negative changes in the BHS and considering the identity of the controlling shareholder.

Table A1: Number of Firms in Pyramids and Multiple-Class Shares

The Table shows the number of firms according to how they are controlled. The first column shows the number of firms in pyramidal structures while the second, third and fourth columns show the number of firms according to their position in the pyramid (top of the pyramid, second, third or lower rows). The fifth column is the number of firms that have multiple-class shares. The sample covers non-financial listed Chilean firms from 1990 to 2009. Data from Economatica, Fecus Plus and Superintendencia de Valores y Seguros (SVS).

	Pyramids				Multiple Class Shares
Year	All	Top Row	Second Row	Third or Lower Rows	
1990	39	14	21	4	8
1991	43	15	22	6	8
1992	48	17	24	7	8
1993	52	19	25	8	9
1994	57	21	27	9	9
1995	58	21	28	9	9
1996	64	23	29	12	9
1997	67	23	32	12	9
1998	68	23	32	13	9
1999	68	22	32	14	9
2000	70	21	31	18	9
2001	68	20	30	18	9
2002	68	20	30	18	9
2003	68	20	30	18	9
2004	67	20	29	18	10
2005	73	21	33	19	10
2006	72	20	33	19	10
2007	73	19	33	21	10
2008	72	19	33	20	10
2009	71	19	32	20	9
All	**1266**	**397**	**586**	**283**	**182**

Table A2: Number of Firms by Type of Controller

The Table shows the number of firms according to the type of controller. The controller may be a family, the state, a foreign firm, an individual or a coalition of two or more large shareholders without direct family ties, which we refer to as multiple blocks. The sample covers non-financial listed Chilean firms from 1990 to 2009. Data from Economatica, Fecus Plus and Superintendencia de Valores y Seguros (SVS).

Year	Families	Multiple Blocks	State	Individuals	Foreign Firms	All firms
1990	50	33	7	4	12	106
1991	54	35	7	4	13	113
1992	59	39	7	8	16	129
1993	62	42	6	12	17	139
1994	64	43	6	12	17	142
1995	67	46	6	13	17	149
1996	75	47	6	13	18	159
1997	73	48	5	13	22	161
1998	75	50	5	13	22	165
1999	74	48	3	13	29	167
2000	74	44	3	13	32	166
2001	74	45	3	13	32	167
2002	74	44	3	13	32	166
2003	76	45	3	13	30	167
2004	74	43	3	14	27	161
2005	77	45	3	14	27	166
2006	76	42	3	14	30	165
2007	76	48	3	14	24	165
2008	76	50	3	14	22	165
2009	77	49	3	14	20	163
All	1407	886	88	241	459	3081

Table A3: Statistics on Changes in the Blockholding Share

The Table shows the mean and median for negative (positive) changes in the blockholding share (BHS). Negative (positive) changes are defined as a decrease (increase) of 5 percentage points or more in the BHS in a typical year. Negative changes are further disaggregated into block sale and share issuance. The change in the BHS occurs through share issuance if issuance is a positive amount; otherwise, it is considered a block sale. The sample covers non-financial listed Chilean firms from 1990 to 2009. Data from Economatica, Fecus Plus and Superintendencia de Valores y Seguros (SVS).

Year	Negative Changes in BHS						Positive Changes in BHS	
	Mean	Median	Negative Change in BHS through Block Sale		Negative Change in BHS through Share Issuance		Mean	Median
			Mean	Median	Mean	Median		
1991	-0.12	-0.09	-0.14	-0.14	-0.11	-0.07	0.19	0.11
1992	-0.16	-0.14	-0.16	-0.14	-0.16	-0.14	0.10	0.09
1993	-0.14	-0.13	-0.13	-0.13	-0.15	-0.12	0.08	0.08
1994	-0.16	-0.14	-0.20	-0.21	-0.13	-0.12	0.12	0.12
1995	-0.13	-0.11	-0.09	-0.09	-0.14	-0.15	0.12	0.08
1996	-0.13	-0.10	-0.14	-0.10	-0.13	-0.11	0.09	0.07
1997	-0.19	-0.19	-0.17	-0.11	-0.22	-0.20	0.12	0.11
1998	-0.10	-0.07	-0.12	-0.12	-0.06	-0.06	0.10	0.10
1999	-0.17	-0.07	-0.09	-0.07	-0.25	-0.09	0.16	0.11
2000	-0.07	-0.05	-0.07	-0.05	0.00	0.00	0.12	0.12
2001	-0.13	-0.10	-0.14	-0.10	-0.09	-0.09	0.17	0.10
2002	-0.17	-0.14	-0.19	-0.19	-0.14	-0.14	0.14	0.11
2003	-0.06	-0.06	-0.06	-0.06	0.00	0.00	0.07	0.07
2004	-0.15	-0.12	-0.15	-0.13	-0.11	-0.11	0.13	0.12
2005	-0.16	-0.13	-0.32	-0.32	-0.13	-0.07	0.44	0.44
2006	-0.13	-0.09	-0.08	-0.09	-0.34	-0.34	0.13	0.09
2007	-0.15	-0.14	-0.13	-0.11	-0.17	-0.16	0.11	0.11
2008	-0.17	-0.16	-0.25	-0.25	-0.09	-0.09	0.17	0.13
2009	-0.15	-0.16	0.00	0.00	-0.15	-0.16	0.09	0.08
All	**-0.15**	**-0.11**	**-0.14**	**-0.11**	**-0.15**	**-0.12**	**0.13**	**0.10**

Table A4: Probit Regressions for Changes in the Blockholding Share using Different Proxies for Agency Problems

The Table shows a probit model with robust standard errors for cases of negative (positive) changes in the blockholding share (BHS). A negative (positive) change is defined as a decrease (increase) of 5 percentage points or more in the BHS in a year. Regressions mimic those of Table 6, but only the coefficients of agency proxies are shown. These are the proportion of shares in the firm held by pension funds in the previous year (Pension Funds); and, as before, the difference between control and cash-flow rights in the previous year (wedge). Other independent variables are ownership variables (all lagged by one period): the fraction of shares held by the controlling shareholder (BHS); change in the BHS is a dummy equal to 1 if the firm experienced a negative (positive) change. Market variables include firm and market returns and turnover in the previous year, idiosyncratic volatility in the previous year and a dummy that takes the value of 1 after 2000 when a new law on tender offers was passed. Firm characteristics (all lagged by one period) include: the logarithm of the book value of assets in 2008 expressed in Chilean pesos; book-to-market equity ratio (B/M); free cash flow defined as EBIT over sales; leverage defined as total liabilities over book value of assets; and asset growth defined as the annual growth of book value assets. The sample covers non-financial listed Chilean firms from 1990 to 2009. Data from Economatica, Fecus Plus and Superintendencia de Valores y Seguros (SVS).

	Negative Change in BHS		Positive Change in BHS	
Variable				
Pension funds (t - 1)	-1.91*	-1.35	-0.98*	-1.04*
	(1.089)	(1.062)	(0.580)	(0.582)
Wedge (t - 1)		-1.69***		0.17
		(0.617)		(0.326)
Market, firm and ownership controls	Yes	Yes	Yes	Yes
Observations	1,458	1,453	1,458	1,453

*** p<0.01, ** p<0.05, * p<0.1. Robust standard errors in parentheses

Table A5: Further Statistics on the Wedge Between Control and Cash Flow Rights

This table shows statistics for the wedge according to the type of controlling shareholder as in Table A2. It shows the average and the proportion of shares within each category that have a positive wedge. The sample covers non-financial listed Chilean firms from 1990 to 2009. Data from Economatica, Fecus Plus and Superintendencia de Valores y Seguros (SVS).

Year	Wedge									
	Families		Foreign Firms		Individuals		Multiple Blocks		State	
	Wedge	Firms w Wedge (%)	Wedge	Firms w Wedge (%)	Wedge	Firms w Wedge (%)	Wedge	Firms w Wedge (%)	Wedge	Firms w Wedge (%)
1990	0.07	0.26	0.09	0.42	0.11	0.50	0.10	0.24	0.00	0.00
1991	0.08	0.26	0.08	0.38	0.11	0.50	0.11	0.29	0.00	0.00
1992	0.07	0.27	0.06	0.31	0.08	0.38	0.10	0.26	0.00	0.00
1993	0.07	0.26	0.10	0.35	0.12	0.33	0.09	0.24	0.00	0.00
1994	0.07	0.27	0.10	0.35	0.14	0.42	0.10	0.26	0.00	0.00
1995	0.07	0.25	0.11	0.35	0.12	0.38	0.09	0.28	0.00	0.00
1996	0.08	0.28	0.14	0.39	0.13	0.38	0.09	0.28	0.00	0.00
1997	0.08	0.33	0.11	0.32	0.13	0.38	0.09	0.29	0.00	0.00
1998	0.09	0.33	0.10	0.32	0.13	0.38	0.09	0.28	0.00	0.00
1999	0.08	0.32	0.09	0.41	0.14	0.38	0.06	0.25	0.00	0.00
2000	0.10	0.35	0.10	0.41	0.16	0.46	0.05	0.25	0.00	0.00
2001	0.09	0.34	0.09	0.38	0.15	0.46	0.05	0.24	0.00	0.00
2002	0.09	0.34	0.09	0.38	0.13	0.46	0.05	0.23	0.00	0.00
2003	0.09	0.34	0.08	0.37	0.13	0.46	0.05	0.22	0.00	0.00
2004	0.09	0.36	0.08	0.38	0.16	0.50	0.06	0.23	0.00	0.00
2005	0.09	0.36	0.08	0.37	0.16	0.50	0.07	0.29	0.00	0.00
2006	0.08	0.35	0.11	0.37	0.16	0.57	0.05	0.26	0.00	0.00
2007	0.09	0.35	0.11	0.29	0.16	0.57	0.08	0.38	0.00	0.00
2008	0.09	0.35	0.06	0.27	0.16	0.57	0.08	0.34	0.00	0.00
2009	0.09	0.35	0.06	0.30	0.19	0.57	0.08	0.33	0.00	0.00
All	**0.08**	**0.32**	**0.09**	**0.36**	**0.14**	**0.46**	**0.08**	**0.27**	**0.00**	**0.00**

Table A6: Fraction of Firms Experiencing Changes in the Blockholding Share (BHS) Conditional on the Wedge Between Control and Cash Flow Rights and the Identity of the Controlling Shareholder

This table shows the fraction of firms that experience a negative change in the level of blockholding share (BHS) each year conditional on the wedge, which is defined as the difference between control and cash-flow rights and is lagged by one period. Negative changes are defined as a decrease of 5 percentage points or more in the BHS in a typical year. The identity of the controlling shareholder is as in Table A2. The sample covers non-financial listed Chilean firms from 1990 to 2009. Data from Economatica, Fecus Plus and Superintendencia de Valores y Seguros (SVS).

Year	Negative Change in the BHS									
	Families		Foreign Firms		Individuals		Multiple Blocks		State	
	Wedge	No Wedge	Wedge	No Wedge	Wedge	No Wedge	Wedge	No Wedge	Wedge	No Wedge
1991	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.16		0.14
1992	0.14	0.18	0.00	0.13	0.00	0.00	0.10	0.08		0.14
1993	0.06	0.19	0.00	0.18	0.00	0.40	0.00	0.10		0.33
1994	0.06	0.11	0.00	0.18	0.00	0.29	0.10	0.03		0.17
1995	0.00	0.06	0.00	0.00	0.40	0.29	0.00	0.06		0.00
1996	0.00	0.12	0.00	0.00	0.00	0.25	0.08	0.06		0.00
1997	0.00	0.13	0.00	0.00	0.00	0.29	0.00	0.09		0.00
1998	0.00	0.04	0.00	0.07	0.00	0.13	0.00	0.03		0.00
1999	0.04	0.08	0.00	0.11	0.00	0.25	0.00	0.03		0.00
2000	0.00	0.04	0.00	0.05	0.00	0.00	0.00	0.00		0.00
2001	0.00	0.06	0.00	0.05	0.00	0.14	0.08	0.06		0.00
2002	0.00	0.04	0.00	0.00	0.00	0.00	0.09	0.00		0.00
2003	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00		0.00
2004	0.00	0.20	0.00	0.13	0.00	0.14	0.00	0.21		0.00
2005	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.09		0.00
2006	0.00	0.02	0.00	0.06	0.00	0.00	0.00	0.10		0.00
2007	0.00	0.09	0.00	0.18	0.00	0.00	0.07	0.10		0.00
2008	0.04	0.02	0.00	0.06	0.00	0.00	0.00	0.03		0.00
2009	0.00	0.06	0.00	0.00	0.00	0.17	0.00	0.00		0.00
All	**0.01**	**0.08**	**0.00**	**0.06**	**0.02**	**0.13**	**0.03**	**0.06**		**0.06**

III. Controlling shareholders and market timing in share issuance

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JEL classification: G14, G32, G34.

Keywords: Controlling shareholders; Issuance; Market timing; Ownership.

* We are especially grateful to the referee, C. Fritz Foley, whose excellent comments substantially improved the paper. We are also indebted to seminar participants at the Pontificia Universidad Católica de Chile, the first Finance UC International Conference, Malcolm Baker, Ruth Bradley, Fabio Braggion, Marco Da Rin, Stefano Rossi (discussant), Eduardo Walker, and, particularly, Andrei Shleifer for insightful comments and suggestions. We would also like to thank Fernando Lefort, Eduardo Walker, and Moqi Xu for providing some of the data used in this paper. Francisco Muñoz and Carla Castillo provided excellent research assistance. This paper corresponds to the second chapter of Francisco Urzúa I.'s dissertation at Tilburg University. Larrain acknowledges partial financial support provided by the Programa Bicentenario de Ciencia y Tecnología through the Concurso de Anillos de Investigación en Ciencias Sociales (code SOC-04) and by Grupo Security through Finance UC.

Abstract

We examine market timing in the equity issuance of firms controlled by large shareholders using a hand-collected data set of controlling shareholders' ownership stakes in Chile between 1990 and 2009. When a firm issues shares, the controlling shareholder can either maintain or change his ownership stake depending on how many of the new shares he subscribes. Issuance predicts poor future returns and is preceded by high returns, but only when the controlling shareholder's stake is significantly reduced. Consistent with market timing, the results are stronger in the absence of institutional investors and in hot issuance markets.

1. Introduction

Most corporations in continental Europe, Asia, and Latin America have large controlling shareholders (Barca and Becht, 2001; Claessens, Djankov, and Lang, 2000; Faccio and Lang, 2002; and La Porta, López-de-Silanes, and Shleifer, 1999). Large shareholders can mitigate the agency conflict between managers and shareholders, but they can also pursue interests that are at odds with those of minority shareholders (Burkart, Gromb, and Panunzi, 1997; Grossman and Hart, 1980; and Shleifer and Vishny, 1986). Expropriation of minority shareholders or tunneling can take many forms, from the most obvious ones such as outright fraud or theft to less obvious (and harder to detect) forms such as transactions with related parties at inflated prices (Johnson, La Porta, López-de-Silanes, and Shleifer, 2000).

In this paper, we study another form of opportunistic behavior by controlling shareholders: market timing in equity issuance or the sale of overpriced shares to outside investors. The market timing hypothesis rests on three assumptions. First, the controlling shareholder is better informed than outside investors. Second, some outside investors are naive in the sense that, faced with an issuance, they do not perceive themselves as being at a disadvantage. Third, those outside investors who do interpret the controlling shareholder's intentions correctly face limits to arbitrage.

The controlling shareholder has incentives for the firm to issue overpriced shares because, although his proportional ownership falls with issuance, the overall value of his stake increases. Simply put, the result for the controlling shareholder is a smaller fraction of future dividends, but these dividends are of higher value. The main prediction of the market timing hypothesis is that returns following issuance are poor because outside shareholders are not immediately able to perceive the overvaluation or act against it. As information is gradually incorporated into prices or as investor optimism fades, the overvaluation disappears and returns are poor. The critical implication of this hypothesis is, however, that future returns are

poor conditional on issuance with dilution of the controlling shareholder and not simply conditional on any issuance. Other types of issuance as, for example, when the controlling shareholder subscribes the new shares at pro rata indicate that the company is not overvalued and, therefore, do not predict poor returns.

In this paper, we study post-issuance return predictability according to the stake of the controlling shareholder. The quality of the data available for Chile allows us to determine the ownership stake of the controlling shareholder of all listed firms over a period of 20 years (1990–2009). Our data are unique not only because of the long period covered but also because they allow us to identify the controlling shareholder by name and the size of his stake in a precise way. This process requires intimate knowledge of many firms intertwined through pyramidal structures and other control mechanisms (Morck, Wolfenzon, and Yeung, 2005). Moreover, under Chilean law, all shareholders possess preemptive rights, allowing them to subscribe new issues on a pro rata basis. This implies that, contrary to the typical assumption of the market timing literature, the size of the equity issuance per se is not a proper measure of dilution. To measure dilution we need to know how many of the new shares are subscribed by the controlling shareholder.

We find that share issuance in general predicts low future returns, as previously shown by Pontiff and Woodgate (2008) and McLean, Pontiff, and Watanabe (2009). However, consistent with the market timing hypothesis, we find that all of this predictive power comes from equity issues that imply substantial dilution of the controlling shareholder. Monthly dollar returns are on average 0.81% for diluting-issuers as compared with 2.46% for nonissuers. This implies that minority shareholders who buy shares of diluting-issuers, instead of investing in nonissuers, lose on average 20% in a year. Other issuances have a negligible impact on future returns. For instance, monthly returns are on average 2.31% after

equity issues when the controlling shareholder's stake does not change (i.e., when the controlling shareholder subscribes the issue at pro rata).

The alternative to the market timing hypothesis is that shares are issued at fair price and low post-issuance returns reflect the relatively low risk of these companies. We address the risk-based explanation in two ways. First, all of our tests control for the standard risk factors identified in the asset pricing literature such as size, value, and momentum (Fama and French, 1992, 2008). Second, we explore changes in risk around issuance. For example, Carlson, Fisher, and Giammarino (2010) find that market betas decrease after US seasoned equity offerings (SEOs), which they interpret as a sign of issuance going hand-in-hand with a decrease in risk. In our sample, we instead find that, contrary to the risk-based explanation, the market betas of poor-performing issuers increase after issuance.

Consistent with the second assumption of the market timing hypothesis, we find that the under–performance of diluting issuers is more pronounced among firms that do not have institutional investors (e.g., private pension funds) in their shareholder base. Institutional investors are arguably more sophisticated than retail investors and less prone to irrational optimism. Similarly, the under–performance is stronger if the firm issues equity in a hot issuance market. According to the behavioral literature, hot markets are dominated by naive, optimistic investors (Baker and Stein, 2004), which explains the differential impact of issuance in these periods. Finally, we show that no return under–performance is evident following instances of dilution when the controlling shareholder reduces its stake by selling old shares (a block sale) instead of issuing new shares. In block sales, the opportunity for overvaluation is limited not only by the fact that outside investors are likely to be wealthier and more sophisticated but also because the controlling shareholder's intentions are more apparent. In a block sale, the controlling shareholder receives the proceeds directly, and, in an equity issuance, they go to the firm, probably to finance new projects. It is easier to disguise

overpricing with share issuance rather than block sales precisely because share issuance involves investment. If investors are optimistic about the firm's prospects, they like the firm to issue shares for investment, but no reason exists for block sales except overpricing.

In terms of pre-issuance characteristics, we find that the dilution of the controlling shareholder is preceded by high returns and high stock liquidity, which are both typical features of overvaluation (Helwege, Pirinsky, and Stulz, 2007). Dilution is followed by more capital expenditures, although profitability (return on equity, ROE) is lower than after other equity issues and, if investors are disappointed by the company's poor cash flows, this could explain why overvaluation eventually fades away.

Our results contribute to the literature on large shareholders. First, we highlight that, in most firms around the world, it is essential to focus on the controlling shareholder to understand financing policy. Our study of equity financing complements other dimensions of corporate policy in relation to large shareholders including dividend policy (Chetty and Saez, 2005; Faccio, Lang, and Young, 2001; La Porta, López-de-Silanes, Shleifer, and Vishny, 2000; and Shleifer and Vishny, 1986), the cost of borrowing (Lin, Ma, Malatesta, and Xuan, 2011), chief executive officer (CEO) compensation (Bertrand and Mullainathan, 2001; and Burkart, Gromb, and Panunzi, 1997), board compensation (Urzúa I., 2009)), and investment (Cronqvist and Fahlenbrach, 2009). Second, our results show that legal protection of minority investors cannot prevent abuses when investors fall prey to their own naivety[11]. Although preemptive rights are usually considered a remedy for the type of equity tunneling under which controlling shareholders dilute minority shareholders (Atanasov, Black, Ciccotello, and Gyoshev, 2010), they do not rule out market timing.

[11] See La Porta, López-de-Silanes, Shleifer, and Vishny (1998) for the importance of legal protection in other cases.

We also contribute to the literature on issuance and returns. It is well known that SEOs under–perform on average (Loughran and Ritter, 1995; and Spiess and Affleck-Graves, 1995) and, more recently, it has been shown that equity issuance broadly speaking, and not just SEOs, predicts low returns in a cross section of stocks[12]. The reasons for this correlation between issuance and future returns are not yet clear. The behavioral explanation is that smart managers take advantage of irrational investors by issuing overpriced shares (Baker and Wurgler, 2000; Frazzini and Lamont, 2008; Greenwood and Hanson, 2012; Jenter, 2005; Jenter, Lewellen, and Warner, 2009; and Loughran and Ritter, 1995). The rational explanation is that issuance coincides with a decrease in risk (e.g., a fall in the firm's beta) and, therefore, lower expected returns (Carlson, Fisher, and Giammarino, 2006, 2010; Li, Livdan, and Zhang, 2009; and Pástor and Veronesi, 2005).[13]

Our results tend to side with the behavioral explanation, although they are drawn from an institutional environment different from that studied in most of these other papers. First, we study a market in which, unlike the US, large controlling shareholders are prevalent and, as a result, the decision to issue equity resides with the controlling shareholder and not with management. Second, we focus on rights offerings, instead of SEOs, as a method of issuing equity. Although they have largely disappeared from publicly traded US companies (Eckbo, 2008), rights are common in many countries (La Porta, López-de-Silanes, Shleifer, and Vishny, 1998). SEOs automatically imply dilution of the controlling shareholder while, in

[12] See Pontiff and Woodgate (2008) on US evidence and McLean, Pontiff, and Watanabe (2009) on international evidence.

[13] Insider trading around SEOs is related to the market timing hypothesis and has been studied in US corporations in which managers heavily influence corporate decisions. If managers take advantage of windows of opportunity for issuing equity, then it is reasonable to expect they would do the same when trading stock of their own companies. Broadly speaking, this literature finds support for the market timing hypothesis (Clarke, Dunbar, and Kahle, 2001, 2004; Intintoli and Kahle, 2010; Kahle, 2000; and Lee, 1997).

rights offerings, this is not necessarily so. This variation in dilution across different rights offerings allows us to develop sharper tests of the market timing hypothesis.

The rest of the paper is organized as follows. In Section 2, we review the main assumptions and prediction of the market timing hypothesis. Section 3 describes our data in detail. In Section 4, we present the main return regressions. In Section 5, we study the before and after of share issuances in terms of firm characteristics (such as ROE, capital expenditures, and others) that can predict issuance or that are affected by issuance and, in Section 6, we present our conclusions.

2. The market timing hypothesis

The market timing hypothesis rests on three assumptions. First, the controlling shareholder is better informed than outside investors. Second, some outside investors do not infer their position of disadvantage from the behavior of the controlling shareholder. Third, those outside investors who do understand the controlling shareholder's intentions are constrained in their buying and selling of securities (i.e., they face limits on arbitrage).

Suppose that a firm controlled by a large shareholder is contemplating an equity issue to fund a new (observable) project. The controlling shareholder has full control over the decision, although all shareholders have preemptive rights. Suppose also that the market value of assets-in-place is above the valuation of the controlling shareholder (i.e., his assessment of the discounted value of future dividends). The controlling shareholder can take advantage of a cheap source of funding for the new project if the firm issues equity at the current market price but does not want to subscribe the new issuance because, in his opinion, the shares are overpriced. The controlling shareholder's stake falls with the issuance but its overall value increases because the firm receives a cash infusion. From our second

assumption, outside investors do not infer the overvaluation from the fact that the controlling shareholder does not want to subscribe the new issuance (something that they can observe). Investors end up overpaying for the shares to the benefit of the controlling shareholder.

The main prediction of the market timing hypothesis is that the returns following issuance are poor as investors slowly come to realize that the firm is overvalued. The behavioral literature has explored several different explanations for this slow reversion of investor sentiment. Hong and Stein (2007), for example, mention three broad classes of theories: (1) gradual dissemination of information; (2) limited investor attention; and (3) heterogeneous priors. Simply put, market prices come to reflect true values in a slow and predictable way when agents incorporate information only gradually, or when they do not pay attention to all information, or when they are overconfident about their own priors. This still begs the question of why investors are fooled for such long periods of time. One possibility is that outside investors get particularly excited about new projects and their optimism tails off slowly only as the new company's true cash flows are gradually revealed after issuance.

In addition to the slow reversion of sentiment, the market timing hypothesis needs to explain why rational investors (or arbitrageurs) fail to take advantage of overvaluation. This is where the assumption of limits to arbitrage comes into play. In theory, overvaluation disappears immediately if rational investors, who understand the controlling shareholder's intentions, are unconstrained. The rational response to overvaluation is short selling, but short selling is costly and prohibited in many markets. Only optimistic valuations are reflected in the market price if there are short–sale constraints, which can explain the predictability of returns (Chen, Hong, and Stein, 2002; Diether, Malloy, and Scherbina, 2002; Miller, 1977; and Scheinkman and Xiong, 2003). Besides short–sale constraints, other limits to arbitrage include the same slow reversion of sentiment (DeLong, Shleifer, Summers, and Waldmann, 1990), the lack of close substitutes for a stock (Shleifer, 1986; and Wurgler and Zhuravskaya,

2002), volatility (Pontiff, 2006), and the fact that most capital is managed in delegated portfolios (Shleifer and Vishny, 1997). For these and other reasons, arbitrageurs can fail to act against overvalued stocks, even when fully convinced of their overvaluation.

Long-run return predictability distinguishes the market timing hypothesis from the asymmetric information model (Myers and Majluf, 1984). The latter model predicts an instantaneous decline in stock prices when a firm announces an equity issue because the market immediately understands that the assets-in-place are worth less than previously expected. However, long-run return predictability implies under reaction to new information instead of an instantaneous adjustment (Loughran and Ritter, 1995). Although the main trade-off between the controlling shareholder's dilution and investment is present in both models, the key difference between market timing and asymmetric information is that, in the former, investors are not able to infer the overvaluation from the decision to issue equity.

According to the market timing hypothesis, the controlling shareholder is indifferent between diluting or not if the market value coincides with his own valuation and does not dilute if the market value is below his own valuation. Issuances that do not imply the controlling shareholder's dilution (for example, when the controlling shareholder subscribes new shares at pro rata) are a sign that the company is not overvalued and should not predict poor returns. Thus, a more precise prediction of the market timing hypothesis is that future returns are poor only in cases of issuance with dilution.

Similarly, poor post-issuance returns should not be expected when investors are sophisticated because they understand the controlling shareholder's incentives and adjust prices immediately. By the same token, when the controlling shareholder's intentions are more transparent, poor subsequent returns should not be expected. It is, for example, harder to get away with overvaluation when the controlling shareholder is selling old shares and receives the proceeds directly as compared with cases of equity issuance when the proceeds

go to the company. If investors are optimistic about the firm's prospects, they like the firm to issue shares for investment, but no reason exists for block sales except overpricing.

We have assumed so far that, after issuance, the controlling shareholder retains control and the large private benefits associated with it. Control is clearly an endogenous variable and needs to be taken into account in our analysis. However, less than 1% of the equity issues in our sample entailed a transfer of control so, in practice, the assumption that the controlling shareholder maintains control is realistic. Still, the controlling shareholder must decide how much to sell to maximize personal benefit. The amount that can be sold is limited by the controlling shareholder's desire to avoid adverse inference about the firm's prospects (Myers and Majluf, 1984) and, perhaps, by a downward-sloping demand curve for the stock (Shleifer, 1986). Issuing too much equity in comparison with the firm's investment prospects can make the controlling shareholder's intentions apparent to investors and eliminate the overvaluation. Similarly, if the demand curve is steep, it can produce a much lower price and eliminate the advantage of the issuance.

In those few cases in which control is at stake, a private negotiation between the controlling shareholder and another large shareholder is likely (Zingales, 1995). In this case, the level of due diligence and bargaining power on each side of the transaction make it less likely that shares are overvalued. The price at the moment of the transaction reflects a control premium to compensate for the private benefits associated with control but, as in the asymmetric information model, this does not imply long-run predictability after control transfers.

3. Data

There are two data sources for our tests. First, we collect stock prices and financial statements from readily available data sets. Second, we hand-collect information about ownership structure from several sources.

a. Stock prices and financial statements

Our sample covers almost all non financial Chilean companies listed on the Santiago Stock Exchange between 1990 and 2009. We exclude only highly illiquid and small listed companies such as country clubs and schools. The sample covers 85% of Chilean stock market capitalization in the average year, with financial companies accounting for most of the remaining 15%. The data on stock prices and financial statements used are obtained from Economatica. A more detailed description of how we construct our database can be found in Donelli et al (2013).

Most large firms in Chile are listed, in contrast to other emerging markets and even some developed markets such as Germany, France or Italy, where many large firms are privately held (Franks, Mayer, Volpin, and Wagner, 2012). Chile's aggressive privatization program in the 1980s and early 1990s explains companies' ample stock market representation. Chile is, nonetheless, similar to other emerging and developed economies in terms of legal protection of investors, the frequency of initial public offerings, the level of control premium, and the overall level of ownership concentration (Djankov, La Porta, López-de-Silanes, and Shleifer, 2008).

Table 1 provides summary statistics for the main variables used in return regressions. We trim returns at the top and bottom 0.5% and also winsorize other variables at the top and bottom 1% to eliminate the effect of outliers.[14] Our sample consists of approximately 21

[14] The reason for trimming returns is that some extreme observations are most likely the result of coding errors in the database. For example, the standard deviation of raw (untrimmed) monthly returns is 755%, due mostly to

thousand firm-month observations. The mean (median) monthly return in dollar terms is 2.45% (1%) with a standard deviation of 11%. Average returns are high, but Chile experienced a unique transition in these two decades (1990–2009) when per capita GDP almost doubled in dollar terms and tripled in purchasing power parity terms. The underlying reasons for this impressive economic boom were the structural reforms implemented by the government of General Augusto Pinochet in the 1970s and 1980s (e.g., trade openness, macro stability, the privatization of social security, etc.).

Insert Table 1 near here

The definition and timing of variables follows the recent literature on issuance and returns (Fama and French, 2008; McLean, Pontiff, and Watanabe, 2009; and Pontiff and Woodgate, 2008). The market beta is defined as the regression coefficient of a firm's stock returns on the market return over the previous 24 months (from month *t*-24 to month *t*-1, when available). Size (ME) is the natural logarithm of total market equity (in dollars) at the end of June of each year; the book–to–market ratio (BM) is the natural logarithm of the book value of equity divided by its market value in December of each year; and momentum (MOM) is the buy-and-hold return over the previous six months (from month *t*-7 to month *t*-1). We have slightly fewer observations for this last variable because it requires continuous data over the previous six months and, for some small firms, gaps exist in the price series.

Issuance (ISSUE) is defined as the log-change in the number of shares outstanding comparing the end of December of two consecutive years. Shares outstanding are adjusted for splits. Similarly to McLean, Pontiff, and Watanabe (2009), we find that issuance is highly skewed to the right. The mean value of 4% is above the 75th percentile, which is zero. In their sample of 41 countries, McLean, Pontiff, and Watanabe (2009) report a mean value of

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the extreme observations. If we winsorize returns, instead of trimming, we get basically the same results as those reported throughout the paper. See McLean, Pontiff, and Watanabe (2009) for a similar treatment.

5.3% and a 75th percentile of 0.8%. In our sample, 0.8% corresponds approximately to the 83rd percentile.

Table 2 provides summary statistics for other variables derived from companies' annual balance sheets and income statements. These include ROE, total assets, dividends over book equity, and capital expenditures (the change in property, plant, and equipment between two consecutive years) over assets.

Insert Table 2 near here

b. Ownership data

The real challenge for our tests is to obtain data on ownership structures. Listed companies in Chile are required by law to disclose their 12 largest shareholders in their annual reports, indicating the number of shares held by each. Annual reports from 2004 onward are publicly available at www.svs.cl, the website of the Superintendencia de Valores y Seguros (the Chilean stock market regulator, hereafter SVS) and a few companies also post older reports online. From 1990 to 2003, we obtain the 12 largest shareholders from two private databases: Fecus Plus and Economatica.

Because the 12 largest shareholders are almost always other companies (some of them listed; others, private), this information is in itself little help in identifying a company's ultimate controlling shareholder. Approximately one-third of the firms in our sample are controlled through pyramids, a standard mechanism for achieving control in many emerging and developed countries (La Porta, López-de-Silanes, and Shleifer, 1999; and Morck, Wolfenzon, and Yeung, 2005). Firms' annual reports must, therefore, be checked by hand to understand their ownership structure. Annual reports explain whether control is exercised through one holding company that owns all the controller's shares or alternatively through several firms related to the controlling shareholder. From the annual reports, we can also identify the presence of multiple classes of shares with different voting rights. These are,

however, not common in Chile (fewer than ten firms in our sample). Finally, annual reports provide additional information (e.g., management and board composition) that also helps to identify the ultimate controlling shareholder. With all this information, we compute the fraction of shares held by the controlling shareholder in each firm between 1990 and 2009. To the best of our knowledge, such an extensive database would be difficult to assemble in other countries, including the US. Helwege, Pirinsky, and Stulz (2007), for example, use a shorter sample (16 years) in their study of ownership dynamics in US firms. We are also able to identify the controlling shareholder by name and size of stake in a precise way, allowing us to determine when the stake is diluted. In other work on ownership structures such as Helwege, Pirinsky, and Stulz (2007) or Foley and Greenwood (2010), blockholdings are measured for insiders (officers and directors) as an anonymous group.

In an example that serves to illustrate our methodology, Viña Santa Rita, one of Chile's largest winemakers, is controlled by the Claro family through a pyramid containing two listed companies (Elecmetal and Cristalerías) and several intertwined privately held companies. The Claro family directly owns 50% of Elecmetal, which holds 34% of Cristalerías, which, in turn, holds 55% of Santa Rita. Considering only links through listed companies, the Claro family, therefore, controls 55% of the shares of Santa Rita. This assumes, as is standard in the literature on control, that control is achieved with a stake larger than 20% (Adams and Ferreira, 2008; and La Porta, López-de-Silanes, and Shleifer, 1999). However, the Claro family's stake increases to 78% once holdings through privately held companies are taken into account.

Panel B of Table 2 shows summary statistics for ownership variables. The controlling shareholder's mean and median stake is about two-thirds. Following the 20% rule for assigning control, almost 99% of companies in our sample are controlled by a large shareholder. Cash flow rights, i.e., the fraction of dividends received by the controlling

shareholder, can be determined either by multiplying all ownership stakes in the pyramidal chain or by multiplying the stake that the controlling shareholder holds in each share class by the dividend rights of each class. Cash flow rights are slightly below the stake of the controlling shareholder, with an average difference between the two of 9%. See the Appendix for further information about cash flow rights in the Chilean market.

In the last row of Table 2, we report summary statistics for the frequency of large changes (more than ±5%) in the controlling shareholder's stake as a result of either the issue of new shares or the sale or purchase of blocks of shares. According to this definition, 12% of the observations in our sample correspond to large changes and are almost evenly split between positive and negative changes. Control is very persistent despite changes in the controlling shareholder's stake, with only two out of the 325 issuances in our sample implying a transfer of control.[15] This is probably related to the sizable private benefits associated with control. According to Dyck and Zingales (2004) and Nenova (2003), the private benefits of control are large in Chile, ranging between 16% and 23% of the market price.

4. Low returns after issuance with dilution

In this section we explore the behavior of returns after issuance by forming portfolios and then at the firm level with cross-sectional regressions.

a. Average returns and portfolios

Chilean law gives shareholders in publicly listed companies preemptive rights on a pro rata basis. These are intended to protect minority shareholders against dilution as shown by recent evidence (Atanasov, Black, Ciccotello, and Gyoshev, 2010). The controlling

[15] Our evidence on the persistence of control throughout share issuances fits well with the results of Hauser, Kraizberg, and Dahan (2003), who show that controlling shareholders tend to stay in control in a sample of Israeli SEOs. Franks, Mayer, Volpin, and Wagner (2012) show evidence of the persistence of control in continental Europe.

shareholder can retain his stake by simply exercising his rights, dilute his stake by not exercising or selling these rights or increase it by buying rights from other shareholders.

Table 3 reports average future returns for different equity issues according to what happens to the stake of the controlling shareholder. Future returns consider those from July of year *t* through June of year *t*+1, when the year of issuance is year *t*-1 and there is, in other words, at least a six-month window between issuance and returns, implying that the effect of issuance we find is a medium or long–run effect. This timing convention follows the work of Fama and French (2008), Pontiff and Woodgate (2008), and others in predictive regressions. We find that issues that result in substantial dilution, defined as a decrease in the controlling shareholder's stake that is equal to or larger than 5%, have lower subsequent returns than other issues. The average monthly return in this category is 0.54%, and other issues have average returns of about 2%–2.5%, in line with the full-sample average. A similar pattern can be seen in annual returns (July of year *t* through June of year *t*+1). In other words, share issuance per se does not predict low returns, but share issuance with a strong dilution of the controlling shareholder does predict low returns.

Insert Table 3 near here

Fig. 1 illustrates the return patterns in event time. For the sake of visual clarity, we present annual returns averaged across issuers, so there is a single observation for each year. Portfolio formation is in June of year *t*. Year one corresponds to the average annual return between July of year *t* through June of year *t*+1, year two is the return from July of year *t*+1 through June of year *t*+2, and so on. Issuance occurs in year -1. Issuers that dilute strongly have very high returns the year before issuance (year -2) compared with other issuers. In the year after issuance (year 1), a spread of about 25% emerges between issuers that dilute and other issuers. The spread, however, subsequently seems to disappear. The returns of issuers

that do not dilute are fairly stable throughout the event window while, for issuers that dilute, they increase enormously before the issuance and decrease afterward.

Insert Fig. 1 near here

Fig. 2 shows similar patterns as the previous figure but in months from the effective date of issuance.[16] After approximately 15 months from issuance, the accumulated return difference between diluting issuers and other issuers stabilizes at around 15% and there is no noticeable reversion in this pattern.

Insert Fig. 2 near here

In Fig. 3 we illustrate the main point with the example of Santa Rita, which had three different equity issues in the sample period. A share issuance in 1992 implied a drop in the Claro family's stake from 95% to 73%. The average monthly return of Santa Rita in the subsequent 12 months (July 1993 through June 1994) was a paltry -5%. In 1996, a second issuance of 23% of shares outstanding took place without diluting the Claro family. The average return in the following 12 months (July 1997 through June 1998) was basically 0%. Finally, in 2000, there was another equity issue of 6.7% of shares outstanding, again without diluting the Claro family. The average return in the following 12 months (July 2001 through June 2002) was 3.5%.

Insert Fig. 3 near here

As shown in Table 3, the effect of issuance on returns is non-monotonic: issues in which the stake of the controlling shareholder decreases perform abnormally badly, but issues in which the stake of the controlling shareholder increases do not perform abnormally well. Overperformance would suggest that the controlling shareholder is able to increase his stake by buying undervalued shares. However, given that these gains have to be shared with

[16] Fig. 2 uses fewer observations than Fig. 1, or than the return regressions, because we can identify an exact date of issuance (day and month within the year) for only 56% of the events in our sample.

minority investors, who can also subscribe the issuance because of their preemptive rights, it is more likely that issues in which the controlling shareholder's stake increases are priced fairly. In other words, if the issue is severely underpriced, the option always exists of not carrying it out and seeking alternative sources of financing. A repurchase from minority shareholders would be different because, in that case, new shares are not issued. Empirical evidence in several markets suggests that repurchases predict future return overperformance (Peyer and Vermaelen, 2009) but, due to legal restrictions, they are rare in Chile.

Table 3 shows that the average size of the issue does not have a clear correlation with the change in the controlling shareholder's stake. For instance, the average size of the issue is 6.46% in equity issues with substantial dilution and 7.10% in those without a change in the stake of the controlling shareholder. In Panel B of Table 3, we split the sample by the size of the issuance and by the prior stake of the controlling shareholder (splitting by the sample median in each case). Poor returns are concentrated among issuers in which the controlling shareholder is strongly diluted in small and large issues alike. Similarly, the results do not vary significantly with the controlling shareholder's stake before the issuance.

Table 4 presents average returns for portfolios of different issuers. Portfolios have the advantage of collapsing all observations at a particular date into a single return. Average returns at the portfolio level should be robust to distortions caused by isolated market events that could, theoretically, affect the summary statistics presented in the previous table. We find that the equally weighted portfolio of issuers with a large decrease in the stake of the controlling shareholder has an average return of only 0.81%. Other issuers and nonissuers have returns of about 2% on average. The spreads between portfolios are generally large and significant. For example, the spread between issuers with and without dilution is 1.35% (*t*-statistic of 2.59). The results for value-weighted portfolios and annual (non-overlapping) returns are similar.

Insert Table 4 near here

b. Return regressions

The basic panel regression is:

$$R_{i,t} = a_t + b\,\beta_{i,t-j} + c\,ME_{i,t-j} + d\,BM_{i,t-j} + e\,MOM_{i,t-j} + f\,ISSUE_{i,t-j} + \epsilon_{i,t} \qquad (1)$$

where $R_{i,t}$ is the dollar return on stock i in month t. The coefficient a_t is a time fixed effect. Beta, size (ME), book-to-market (BM), momentum (MOM), and share issuance (ISSUE) are as defined previously with the timing conventions that follow Fama and French (1992, 2008) and Pontiff and Woodgate (2008). This means that returns from July of year *t* through to June of year *t*+1 are regressed on size computed in June of year *t*, the book-to-market ratio of December of year *t*-1, momentum from the previous six months, and issuance from December of year *t*-1. Beta is computed with a rolling window of the 24 months prior to the return. Residuals in this regression are allowed to be heteroskedastic and clustered by month (or by year in the case of annual returns).[17]

Regression results are reported in Table 5. As expected from Fama and French (1992, 2008), there is a significant effect of size, value (BM), and momentum, but not of beta.[18] Adding share issuance does not significantly affect the magnitude of the four previous variables. ISSUE has a coefficient of -1.10 (*t*-statistic = -1.45), which implies that a 1

[17] Fama-Macbeth regressions give similar results to the panel regressions reported throughout the paper. The panel estimator allows us to give more weight to richer cross sections, while the Fama-Macbeth estimator weighs all cross sections equally. This is important given the relatively small number of stocks we have when compared with applications in the US market. Our sample has 74 stocks with full data in 1990 and 134 stocks with full data in 2009.

[18] The value effect associated with BM has been shown in international stock markets by Fama and French (1998).

standard deviation increase in issuance (0.13) predicts a decline of 0.14% in future average returns. This return decline is exactly the same as that found by McLean, Pontiff, and Watanabe (2009) in their sample of 41 markets. In the US, however, Pontiff and Woodgate (2008) find a post-issuance return decline of 0.33%.

Insert Table 5 near here

We also interact ISSUE with a dummy for those issues in which the stake of the controlling shareholder (SCS) decreases by 5% or more. This dummy focuses on changes in the SCS that occur through issuance and does not cover those that occur through the sale of preexisting shares. The regression is:

$$R_{i,t} = a_t + b\,\beta_{i,t-j} + c\,ME_{i,t-j} + d\,BM_{i,t-j} + e\,MOM_{i,t-j} + f\,ISSUE_{i,t-j} + g\,(ISSUE_{i,t-j} \text{ x Dummy Iss w/Decrease SCS Larger } 5\%_{i,t-j}) + \epsilon_{i,t} \quad (2)$$

Coefficient g in Eq. (2) captures the extra marginal effect of issuance when the SCS is significantly reduced. In the third column of Table 5, the coefficient of ISSUE alone (*f*) falls in magnitude to -0.27. Coefficient *g* is -4.47 (*t*-statistic = -3.23), which implies that the total effect of ISSUE in cases with a large decrease in the SCS is -4.74 (= - 0.27 - 4.47). A 1 standard deviation increase in issuance leads to a decline of 0.62% in future returns in the group of issues with strong dilution of the controlling shareholder. These results imply that the predictive power of ISSUE comes almost exclusively from the observations with dilution.

In the fourth column of Table 5, we use a set of dummy variables, instead of the continuous variable ISSUE, to indicate the five groups of issuance from decreases to increases in the SCS. Because these are dummy variables, the coefficient attached to them is the average effect of each type of issuance on future returns (once we control for the other

variables in the regression). The variable ISSUE, instead, captures the marginal effect of issuance. Results show that an equity issue with a substantial decrease in the SCS predicts a decline in future returns of 1.72% (*t*-statistic = -3.44). Although some of the other types of issuance also have negative coefficients, none of them is statistically significant or comparable in magnitude. As noted in Table 3, the effect of the SCS is non-monotonic: Issues with an increase in the SCS do not predict abnormally positive returns as opposed to the negative returns predicted by decreases in the SCS. Regressions with annual returns, although with fewer observations to avoid overlap, paint a similar picture in terms of both the magnitude and statistical significance of the coefficients. These results are similar to those previously obtained in Donelli et al (2013) in their study of ownership dynamics in the Chilean market. In their paper they show that returns fall after issuances where the controlling shareholder dilutes her stake significantly. Furthermore, they show that the negative effect is concentrated in the second year after the issuance.

c. Robustness

In Table 6, we study the robustness of the previous result to several changes in the regression specification. We first interact ISSUE with the change in the SCS (i.e., with the continuous variable and not the dummy variable). The coefficient on the interaction is significant at the 5% level, implying that each percentage point of reduction in the SCS adds -0.089 to the coefficient of ISSUE, which is equal to -1.32 (*t*-statistic = -1.67). We next interact ISSUE with the SCS prior to issuance, instead of with the change in the SCS. As suggested by Table 3 and confirmed in this regression, the stake itself does not affect the impact of issuance. Instead, the key variable that modifies the effect of issuance is the change in the SCS (or the change relative to the previous level as shown in Column 3 of Table 6). A squared term for ISSUE in Column 4 gives results different from the interaction of ISSUE and the change in the SCS. This shows that the effect we find is not merely a non–monotonic

effect of issuance. In Column 6, we control for the change in the SCS while also including our main issuance variables, which does not modify the main conclusion (Column 5 shows the regression with the change in the SCS alone for comparison). Finally, in Column 7, we include a dummy for all the reductions in the SCS larger than 5%, either as a result of issuance or a block sale of pre existing shares ["Dummy Decrease SCS Larger 5% (Iss or Bs)"]. Our main variables of interest remain significant and the effects are even larger. Columns 8–14 show the same robustness for annual returns and the results are similar.

Insert Table 6 near here

d. Investor sophistication

In Table 7, we split the sample into subgroups according to several measures of investor sophistication at the time of issuance. We first divide it into hot and cold markets, with the former defined as those months when the fraction of firms with positive issuance is above the sample median (16%). According to the behavioral literature, naive, optimistic investors predominate in hot markets (Baker and Stein, 2004). The regressions show that the interaction of ISSUE and the dummy for large decreases in the SCS is larger in magnitude and more statistically significant in the hot market subsample. This implies that issuance with dilution has a negative effect on future returns, particularly if it occurs in a hot issuance market. The differential impact of hot and cold markets is in line with Mclean, Pontiff, and Watanabe (2009).

Insert Table 7 near here

Our second proxy for investor sophistication is related to institutional investors. Since the privatization of social security in the early 1980s, domestic pension funds have become the largest, and arguably most sophisticated, institutional investors in the Chilean market, holding approximately 10% of all shares. Due to disclosure requirements, we have access to details of their stock portfolios in each period. We expect firms without pension funds in their

shareholder base to have an easier time engaging in market timing because there is more room for sentiment and overvaluation in these firms. Consistent with this idea, our results in Columns 3 and 4 of Table 7 are stronger for the subset of firms that do not have pension funds in their shareholder base.

Finally, we study the cases in which the controlling shareholder reduces its stake by selling old shares. In Table 8, we perform some of the tests we did for issuance for these block sales. Panel A in Table 8 is in the style of Table 3, and Panel B is in the style of Table 5. We split changes in the stake of the controlling shareholder that are not associated with issuance into five groups, from large block sales of more than 5% to large block purchases of more than 5%. We find that, contrary to the case in which the controlling shareholder reduces his stake through issuance, stock returns are not poor after block sales.

Insert Table 8 near here

In block sales, the incentives are more apparent to outside investors. If investors are optimistic about the firm's prospects, they like the firm to issue shares for investment, but no reason exists for block sales except overpricing. Investors in block sales are also more likely to be sophisticated. The absence of poor returns after block sales is, therefore, a potential confirmation of the market timing hypothesis, which is based on investors not understanding the intentions of the controlling shareholder. It must be noted, however, that this evidence is similar to that provided in Donelli et al (2013). They show that negative returns only follow after issuances with dilution and not after those were the controlling shareholder reduces her stake. We provide three pieces of evidence related to boards of directors, the number of ownership blocks, and the behavior of pension funds to support the idea that outside investors in block sales are typically wealthier, are more sophisticated, and have more bargaining power than in issuances. This evidence is only suggestive, but we believe it points in the same direction as the previous literature on block sales (Barclay and Holderness, 1989, 1991).

First, we look at boards of directors in the year of the issuance or block sale in comparison with the previous year. Changes in the board are likely to indicate the presence of a new large shareholder. We find that changes in its size (most likely the addition of one director) occur after 20% of block sales, but only after 15% of issuances with strong dilution. Changes in board composition, without a change in its size, are also more likely after block sales than after issuances with dilution: 64% versus 47%. In the case of block sales, the average decrease in the controlling shareholder's stake is 14.3% or precisely the amount required for a seat on a typical seven-member board. Ripley, one of Chile's main retail chains, is a clear example of a block sale that involved another large shareholder. In 2009, the controlling Calderón family reduced its stake from 81% to 61% and the 20% block, which gives the right both to a board seat and to enter a shareholders' agreement, was acquired by the Saieh family.

Second, we do not expect to see new blocks of ownership if only retail investors acquire the shares sold by the controlling shareholder but rather when large investors are involved. When considering blocks larger than 5%, as in Barclay and Holderness (1989, 1991), we find that a firm goes from having an average of 2.87 blocks before the block sale to 3.25 blocks afterward. Firms before an issuance with dilution have approximately the same average number of blocks (2.85) but not as many blocks after issuance (3.05). This suggests that, when the controlling shareholder reduces his stake by selling old shares, they are on average acquired by larger investors.

Third, we compare issuance and block sales in companies that had pension funds before and after the dilution. We find that pension funds buy on average (median) 34% (21%) of the shares in issuances and 43% (37%) in block sales. In other words, pension funds —the largest institutional investors— buy more shares in block sales than in equity issues.

5. Firm characteristics before and after equity issuance

The market timing hypothesis focuses on long-run returns but, in this section, we examine other firm characteristics. The dynamics of these characteristics around issuance can help paint a fuller picture of market timing or, if they fail to match the predictions of the market timing hypothesis, shift the balance toward other explanations.

In terms of pre-issuance characteristics, the market timing literature suggests that proxies for overvaluation and investor sentiment, such as high past returns and liquidity, should predict dilution (Helwege, Pirinsky, and Stulz, 2007). However, the model does not make clear predictions regarding post-issuance outcomes such as profitability (ROE) or capital expenditures, although high capital expenditures are consistent with growth opportunities as a source of irrational optimism and, similarly, a lower than normal future ROE is consistent with a reversal of investor optimism. Although these are not necessary conditions for market timing, they can complement the previous evidence on stock returns.

An alternative theory is the real options model of Carlson, Fisher, and Giammarino (2006). In this model, capital expenditures are the nexus between issuance and future returns. When a firm issues equity, the company's risk falls because risky investment opportunities, which behave like options, are transformed into safe real assets. Typical exante features of issuance would be good investment opportunities as represented, for example, by the company's market-to-book ratio (Tobin's q) and firms should invest heavily after issuance. Contrary to the market timing hypothesis, the real options model does not give explicit predictions regarding the difference between issuance with and without dilution of the controlling shareholder. In this model, the under-performance of issuers is simply a reflection of the lower risk of these stocks. The fall in risk should be seen, for example, in a lower market beta, which is the metric of risk in the capital asset pricing model (Carlson, Fisher, and Giammarino, 2010). This change in risk is the defining feature of the real options model vis-à-vis the market timing hypothesis and it is, therefore, crucial to explore it.

a. Issuance with dilution after high returns and high liquidity

For the ex ante determinants of issuance, we conduct a multivariate probit analysis similar to Helwege, Pirinsky, and Stulz (2007), where p_{it} is the probability that firm i issues equity in year t. This probability is modeled as a function of three sets of variables:

$$p_{it} = \Phi\left(\alpha' \text{Firm Characteristics}_{i,t-1} + \beta' \text{Stock Market}_{i,t-1} + \gamma' \text{Ownership}_{i,t-1}\right), \qquad (3)$$

where Φ is the cumulative standard normal distribution. All variables are measured one year prior to issuance. Firm characteristics include variables taken from the balance sheet or income statement such as ROE, the book value of assets (in logs), and leverage. Stock market variables include the book-to-market ratio, stock returns, share turnover (a proxy for liquidity), and idiosyncratic return volatility, plus market returns and market turnover. Ownership variables include the stake of the controlling shareholder, the difference between this and cash flow rights, and a dummy to indicate whether there was a change in the controlling shareholder's stake in the previous year. We include changes in the previous year to control for instances of quick rebalancing or situations in which transactions in two consecutive years are part of a single large transaction. A block sale to a strategic partner is, for example, sometimes followed in the subsequent year by an equity issuance.

Table 9 shows results for the probit regressions. In the first column, we explore the determinants of equity issues in general, irrespective of the effect on the controlling shareholder's stake. Only leverage is marginally significant among firm characteristics and stock market variables. Higher leverage predicts a higher chance of equity issuance because it is more likely that the firm has reached the limit of its borrowing capacity. Out of the ownership variables, a higher controlling shareholder's stake predicts a lower chance of an equity issue. In addition, a change in the controlling shareholder's stake during the previous year increases the chance of an equity issue in the current year.

Insert Table 9 near here

The second column shows results for equity issues with large decreases in the controlling shareholder's stake. These are different from those for general issuance. Good stock market conditions (high returns, high share turnover) are strong predictors of this type of issuance. A 1 standard deviation increase in past returns, for example, implies that the likelihood of this type of equity issue by 0.68% (the unconditional probability of issuance with large decreases in the controlling shareholder's stake is 3.4%).

Column 3 shows all issues except for those with large decreases in the controlling shareholder's stake; Column 4 shows only issues with large increases in the controlling shareholder's stake. Stock market variables lose their predictive power or the predictive relationship is reversed. High past returns and high market turnover predict a lower, not higher, chance of issuance in these cases, although the effects are relatively weak.

The results in Table 9 suggest that only equity issues with substantial dilution are more likely to be accompanied by signs of overvaluation such as high liquidity and high returns. This result was previously obtained in Donelli et al (2013). There, the authors show that signs of overvaluation precede issuances with dilution, while these signs are absent when controlling shareholders reduce their stakes significantly.

b. Post-issuance firm performance

Next, we look at whether equity issues predict changes in accounting performance, capital expenditures, and financing patterns. Our main regression follows Pagano, Panetta, and Zingales (1998):

$$y_{i,t+j} = \alpha \text{ Dummy Iss w/Decrease SCS Larger } 5\%_{i,t} + \beta \text{ Dummy Iss w/o Decrease SCS Larger } 5\%_{i,t}$$

$$+\gamma' \text{Controls}_{i,t-1} + \text{Fixed Effects} +$$

$$\varepsilon_{i,t+j}, \qquad (4)$$

where $y_{i,t+j}$ is the outcome of interest for firm *i* measured with information up to the end of year *t*+j, j = 0,2,4. Dummy Iss w/Decrease SCS Larger $5\%_{i,t}$ is a dummy variable equal to one if there is an equity issue with a decrease in the stake of the controlling shareholder (SCS) larger than 5% in year *t*. Dummy Iss w/o Decrease SCS Larger $5\%_{i,t}$ is a dummy variable equal to one for other equity issues. This second dummy encompasses all the issuance dummies in Table 5, except for the one with decreases in the SCS larger than 5%, to save space and to focus on the most relevant comparisons. The regression for j = 0 represents the effect during the same year of the issuance. We also explore a horizon of up to five years after issuance. The regression includes firm-level controls measured at the end of the year prior issuance, year fixed effects, and firm-level fixed effects.

Following Kim and Weisbach (2008), we define stock and flow outcome variables as

$$y_{i,t+j}^{stock} = ln\left[\frac{v_{i,t+j} - v_{i,t-1}}{assets_{i,t-1}} + 1\right] \qquad (5)$$

and

$$y_{i,t+j}^{flow} = ln\left[\frac{\sum_{k=0}^{k=j} v_{i,t+k}}{assets_{i,t-1}} + 1\right] \qquad (6)$$

The stock variables we study are total assets and debt. For simplicity, we refer to asset growth and debt growth in each case. The flow variable is capital expenditures. We also examine the effect of issuance on future ROE, leverage, and share turnover averaged over the corresponding horizon (j = 0,2,4):

$$y_{i,t+\mathrm{j}}^{average} = \frac{1}{1+j}\sum_{k=0}^{k=j} v_{i,t+\mathrm{k}} \qquad (7)$$

Table 10 reports results for these predictive regressions. Real investment increases after issuance in terms of both capital expenditures and total asset growth. This fits well with the results of Kim and Weisbach (2008), who conclude that financing investment is an important motive for equity issues in a sample of 38 countries. In the short run, the increase in investment is more pronounced following issues with a large decrease in the SCS. For example, in the first column of Table 10, capital expenditures are 8.8% higher in firms in which the controlling shareholder is diluted while they are only 3.7% higher in other issuers. The *p*-value of this difference is 7.1%. Column 2 shows that, after three years, diluting issuers invest at a rate that is 10.8% higher than other issuers (16.2% - 5.4%) and this difference has a *p*–value of 4.1%. No discernible difference emerges after five years. A similar pattern can be seen in total asset growth.

Insert Table 10 near here

The post-issuance drop in profitability has been previously shown (Loughran and Ritter, 1997; and Pagano, Panetta, and Zingales, 1998) but without reference to the stake of the controlling shareholder. We find that profitability, measured as average ROE, falls more strongly after issuance with dilution (Table 10, Columns 7–9). The effect is not noticeable in the first year but, after three and five years, the fall in ROE is 3.1% (from an average ROE of 10% in the full sample). The differential effect between the two types of issuance has *p*–values of 1.6% and 4.8% after three and five years, respectively.

The dynamics of leverage are interesting because low leverage is an alternative explanation for the poor post-issuance returns (Eckbo, Masulis, and Norli, 2000). However,

we find that debt growth is particularly high after issues with a large decrease in the controlling shareholder's stake (Table 10, Panel B, Columns 1–3).[19] As a consequence, leverage falls by less after three to five years in the case of issuance with dilution (Table 10, Panel B, Columns 4–6). This is inconsistent with leverage as the explanation for return underperformance.

Columns 7–9 in Panel B of Table 10 present evidence regarding share turnover. Increasing share turnover is one of the reasons often mentioned by controlling shareholders for not subscribing new issuances.[20] We find that share turnover is marginally higher after issuance with dilution. The difference with other issuers is, however, not significant. The main determinant of share turnover according to Table 10 is the prior stake of the controlling shareholder and, by controlling for this variable, we are, therefore, already capturing part of the positive effect of dilution on share turnover.

It is worthwhile noting that previous evidence in Donelli et al (2013) fails to find any significant change in firms' behavior after negative changes in the stake of the controlling shareholder.

c. Risk dynamics

The short-run increase in investment that we find in Table 10 is consistent with the explanation of Carlson, Fisher, and Giammarino (2006) for the fall in risk, although only indirect evidence. Similarly to Carlson, Fisher, and Giammarino (2010), we report in Table 11 the change in market betas for different issuers. We find that betas increase, instead of

[19] Consistent with Lin, Ma, Malatesta, and Xuan (2011), we find that the difference between the controlling shareholder's stake and cash flow rights is an obstacle for debt growth. Our sample is similar to their sample of European and emerging markets in terms of ownership concentration and pyramidal structures.

[20] For example, Besalco, a construction company, was explicit about its intention to increase the liquidity of the firm's stock by not subscribing its equity issue in 2009 at pro rata. See the 2009 annual report of Besalco at www.svs.cl and *El Mercurio* (a leading Chilean newspaper), June 26 and September 9, 2009.

decrease, in issuers when the controlling shareholder's stake falls by more than 5%. The average beta increases by 0.19 between months *t*-24 and *t* (*t*-statistic = 4.18), where month *t* is the month of the return reported in previous tables. Looking forward to 24 months from time *t*, the beta also increases by 0.05 on average, although this increase is not statistically significant (*t*-statistic = 1.59). The only betas that show a statistically significant decline (for different horizons) are those of nondiluting issuers. No evidence exists that the betas of the worst performing issuers fall after issuance as would be required by the risk-based explanation.

Insert Table 11 near here

6. Conclusions

Large controlling shareholders are prevalent in markets around the world. In this paper, we examine issuance decisions and look at whether equity issues are priced fairly or to the advantage of the controlling shareholder. Using a hand-collected data set of the ownership stakes of controlling shareholders of Chilean companies between 1990 and 2009, we find that share issuance predicts low future returns only when the controlling shareholder's stake is significantly reduced. Minority shareholders lose on average 20% in a year by buying shares in firms in which the controlling shareholder is diluting his stake as compared with investing in other firms. We find that firms that engage in market timing have higher stock returns before issuance and higher capital expenditures after issuance, but also lower ROE after issuance. We do not find evidence of a decrease in the market betas for these stocks, which is at odds with a risk-based explanation.

7. Appendix

a. Cash flow rights in Chile

As the Santa Rita example in Subsection 3.2 shows, separation of control and cash flow rights is common in our sample. Considering only links through listed companies, the claim of the Claro family on Santa Rita's dividends would be 9.3% (= 50% x 34% x 55%). When stakes held through private companies are included, its cash flow rights increase to 20% while its control rights reach 78%. In this case, the separation between control and cash flow rights is, therefore, 58%.

The separation between control and cash flow rights is also standard in East Asia (Claessens, Djankov, and Lang, 2000), Europe (Barca and Becht, 2001; and Faccio and Lang, 2002), and the US (Villalonga and Amit, 2009). Control and cash flow rights in Chile (see Table 2) are higher than in Europe, but not so much as to make a significant difference. The median stake of a controlling shareholder is 57% in Germany and 50% in Italy. The wedge between control and cash flow rights in Chile is comparable to the 10% and 6% observed in Italy and Germany, respectively. The Chilean wedge is, however, much lower than the average found by Almeida, Park, Subrahmanyam, and Wolfenzon (2011) in Korea, which is more than 40%.

The relatively high coincidence of control and cash flow rights in our sample implies that the reductions in control rights and cash flow rights are similar when there is dilution. This can be illustrated by looking at the average firm in our sample as shown in Table 2. The controlling shareholder owns 68% of the shares of this average firm (Firm A). His cash flow rights are on average 59%, implying that Firm A is controlled, for example, through another Firm B in which the shareholder owns an 87% stake (87% x 68% = 59%). If the controlling shareholder reduces his direct stake in Firm A from 68% to 63% through a share issuance, his

cash flow rights decrease from 59% to 54.8% (87% x 63% = 54.8%). In short, his stake falls by 5% in terms of control rights and by 4.2% in terms of cash flow rights. In our sample, we find that, in 95% of issuances in which there is a decline of control rights larger than 5%, there is also a decline in cash flow rights larger than 5%. Other cases with a large decline in control rights correspond to declines that are marginally above the 5% threshold so that cash flow rights fall by something marginally below 5% (as in the example above).

Throughout the paper, we compute changes in the stake of the controlling shareholder through voting rights. Given the small wedge in Chilean companies, these are almost equivalent to changes in cash flow rights. If control is not at stake, the controlling shareholder is, in practice, selling cash flow rights but, from the point of view of outside investors, it is more straightforward to compute changes in terms of voting rights. This information is available, for example, in press reports and road shows at the time of issuance, while, to compute changes in cash flow rights, it is necessary to understand the entire web of firms (public and private) interconnected in the chain of control. Because we study return predictability, it is preferable to use a measure of the controlling shareholder's stake that is readily available to all market participants at the time of issuance. All our results are robust to using a measure of the change in the controlling shareholder's stake based on cash flow rights.

Table 1

Summary statistics for variables in return regressions

This table reports aggregate summary statistics for one-month and one-year holding period returns, the regression coefficient of stock returns on the market return over the previous 24 months (beta), the natural logarithm of end of June market value (ME), the natural logarithm of the previous year-end book-to-market ratio (BM), the past six-month stock return (MOM), and the log change in the number of shares outstanding adjusted for stock splits in the previous calendar year (ISSUE). Returns are trimmed at the 1% level. All other variables are winsorized at the 1% level. The sample covers nonfinancial Chilean firms from 1990 to 2009. Data are taken from Economatica, Fecus Plus, and Superintendencia de Valores y Seguros (SVS).

Variable	Number of observations	Mean	Standard deviation	25th percentile	Median	75th percentile
Monthly returns	21,228	0.02	0.11	-0.04	0.01	0.07
Annual returns	1,246	0.39	0.71	-0.06	0.26	0.65
Beta	21,137	0.82	0.65	0.40	0.81	1.21
ME	20,357	11.53	2.12	10.35	11.63	12.94
BM	20,098	-0.19	0.80	-0.77	-0.22	0.32
MOM	19,950	0.10	0.35	-0.11	0.05	0.25
ISSUE	20,133	0.04	0.13	0.00	0.00	0.00

Table 2

Summary statistics of annual firm-level characteristics and ownership variables

Panel A shows annual summary statistics for return on equity (ROE), the natural logarithm of book assets, leverage, debt growth, asset growth, capital expenditure (CAPEX) as a fraction of total assets, and dividends as a fraction of book equity. All variables are winsorized at the 1% level. Panel B shows summary statistics for the stake of the controlling shareholder (SCS), cash flow rights, the difference between the SCS and cash flow rights, and a dummy variable that identifies firm-year observations with a change in the SCS. The sample covers nonfinancial Chilean firms from 1990 to 2009. Data are taken from Economatica, Fecus Plus, and Superintendencia de Valores y Seguros (SVS).

Variable	Number of observations	Mean	Standard deviation	25th percentile	Median	75th percentile
Panel A: Firm-level characteristics						
ROE	2,990	0.10	0.18	0.04	0.10	0.17
Log book assets	3,030	12.03	2.01	10.97	12.15	13.33
Leverage	3,002	0.37	0.20	0.23	0.38	0.51
Debt growth	2,819	0.32	1.50	-0.10	0.04	0.25
Asset growth	2,822	0.09	0.27	-0.03	0.05	0.13
CAPEX/assets	1,946	0.01	0.08	-0.02	0.01	0.04
Dividends/book equity	2,133	0.07	0.11	0.00	0.03	0.07
Panel B: Ownership variables						
Stake of controlling shareholder (SCS)	3,078	0.68	0.20	0.54	0.68	0.83
Cash flow rights	3,072	0.59	0.24	0.42	0.61	0.79
SCS - cash flow rights	3,071	0.09	0.16	0.00	0.00	0.11
Dummy for change in SCS	2,889	0.12	0.33	0.00	0.00	0.00

Table 3

Summary statistics for firms issuing equity

Panel A shows the mean and standard deviation of monthly and annual returns, the log change in split-adjusted shares outstanding (or ISSUE), the number of monthly observations, and the percentage of the full sample represented by firms issuing equity. These firms are split into five groups according to changes in the stake of the controlling shareholder (SCS) caused by the equity issue. Panel B shows the same statistics but splitting the sample between small and large issues (using the median of shares issued) and between firms with a low and a high stake of the controlling shareholder (using the median SCS). The sample covers nonfinancial Chilean firms from 1990 to 2009. Data are taken from Economatica, Fecus Plus, and Superintendencia de Valores y Seguros (SVS).

Panel A: Issuance statistics considering the full sample

Stake of controlling shareholder (SCS)	Average monthly returns	Standard deviation of monthly returns	Average annual returns	Standard deviation of annual returns	Average ISSUE	Standard deviation of ISSUE	Number of monthly observations	Percentage of full sample
Decreases by more than 5%	0.54%	11.37%	-3.58%	38.13%	6.46%	16.06%	589	2.77
Decreases between 0% and 5%	1.91%	11.31%	12.10%	38.57%	9.75%	16.43%	615	2.90
Does not change	2.63%	12.06%	24.04%	60.92%	7.10%	17.06%	1468	6.92
Increases between 0% and 5%	2.54%	11.10%	32.64%	98.75%	5.13%	11.82%	713	3.36
Increases by more than 5%	2.43%	12.16%	21.17%	64.71%	5.41%	15.25%	510	2.40

Panel B: Issuance statistics splitting the sample by size of issue and SCS

	Small issues				Large issues			
Stake of controlling shareholder (SCS)	Average monthly returns	Standard deviation of monthly returns	Average annual returns	Standard deviation of annual returns	Average monthly returns	Standard deviation of monthly returns	Average annual returns	Standard deviation of annual returns
Decreases by more than 5%	0.45%	10.44%	-5.19%	46.19%	0.56%	11.63%	-3.16%	36.42%
Decreases between 0% and 5%	1.94%	11.85%	8.40%	36.90%	1.85%	10.15%	19.08%	41.72%
Does not change	2.18%	11.65%	12.95%	42.84%	3.20%	12.56%	37.91%	76.06%
Increases between 0% and 5%	2.89%	9.49%	26.13%	46.83%	2.09%	12.82%	40.58%	138.95%
Increases by more than 5%	2.11%	9.39%	12.91%	52.47%	2.50%	12.72%	22.83%	67.43%

	Low SCS				High SCS			
Stake of controlling shareholder (SCS)	Average monthly returns	Standard deviation of monthly returns	Average annual returns	Standard deviation of annual returns	Average monthly returns	Standard deviation of monthly returns	Average annual returns	Standard deviation of annual returns
Decreases by more than 5%	0.36%	11.99%	-6.23%	37.39%	1.29%	8.25%	7.89%	41.43%
Decreases between 0% and 5%	1.61%	11.32%	10.68%	36.82%	2.58%	11.28%	15.02%	42.99%
Does not change	2.76%	11.20%	33.23%	70.23%	2.40%	13.42%	9.35%	38.30%
Increases between 0% and 5%	2.00%	11.15%	12.60%	44.15%	3.33%	11.00%	62.68%	143.10%
Increases by more than 5%	1.89%	12.77%	14.43%	76.03%	2.96%	11.51%	27.91%	52.03%

Table 4

Average returns of portfolios formed according to share issuance and change in the stake of the controlling shareholder (SCS)

This table shows average returns of equal- and value-weighted portfolios. These portfolios are split into six groups: five according to changes in the stake of the controlling shareholder caused by the equity issue and a sixth corresponding to the no-issuance portfolio. The table also shows *t*-tests comparing all portfolios with the portfolio with the largest dilution of the SCS. The sample covers nonfinancial Chilean firms from 1990 to 2009. Data are taken from Economatica, Fecus Plus, and Superintendencia de Valores y Seguros (SVS).

	Equal–weighted portfolios		Value–weighted portfolios	
Portfolios	Average return (*t* -statistic)	Return spread with portfolio (1) (*t* -statistic)	Average return (*t* -statistic)	Return spread with portfolio (1) (*t* -statistic)
Monthly returns				
Portfolio (1)–SCS decreases by more than 5%	0.81%	–	0.82%	–
	(1.37)	–	(1.47)	–
Portfolio (2)–SCS decreases between 0% and 5%	2.16%	1.18%	2.18%	1.37%
	(3.15)	(1.66)	(3.36)	(1.75)
Portfolio (3)–SCS does not change	2.31%	1.35%	2.13%	1.31%
	(4.38)	(2.59)	(4.36)	(2.49)
Portfolio (4)–SCS increases between 0% and 5%	2.10%	1.38%	1.91%	1.10%
	(4.01)	(2.55)	(4.12)	(2.06)
Portfolio (5)–SCS increases by more than 5%	1.90%	0.60%	1.63%	0.81%
	(2.43)	(0.83)	(2.21)	(0.73)
Portfolio (6)–No Issuance	2.46%	1.49%	2.10%	1.28%
	(6.06)	(3.36)	(5.68)	(2.70)
Annual returns				
Portfolio (1)–SCS decreases by more than 5%	7.11%	–	3.06%	–
	(0.88)	–	(0.39)	–
Portfolio (2)–SCS decreases between 0% and 5%	24.06%	15.22%	14.24%	11.18%
	(3.14)	(2.04)	(1.77)	(0.94)
Portfolio (3)–SCS does not change	38.91%	30.01%	19.03%	15.98%
	(4.25)	(3.62)	(2.41)	(2.05)
Portfolio (4)–SCS increases between 0% and 5%	24.09%	20.08%	27.67%	24.61%
	(2.53)	(1.76)	(2.09)	(1.46)
Portfolio (5)–SCS increases by more than 5%	32.21%	23.03%	13.62%	10.56%
	(1.96)	(1.52)	(0.91)	(0.71)
Portfolio (6)–No Issuance	35.69%	25.80%	19.24%	16.18%
	(4.30)	(4.15)	(2.77)	(2.38)

Table 5

Return regressions: the effect of share issuance according to changes in the stake of the controlling shareholder (SCS)

Panel regressions of monthly and annual returns (both multiplied by one hundred) on the regression coefficient of stock returns on the market return over the previous 24 months (beta), the natural logarithm of end of June market value (ME), the natural logarithm of the previous year-end book-to-market ratio (BM), the past six-month stock return (MOM), the log change in the number of shares outstanding adjusted for stock splits in the previous calendar year (ISSUE), the interaction between ISSUE and a dummy variable that identifies observations of ISSUE with a decrease in the stake of the controlling shareholder larger than 5%, and a set of dummy variables that identifies observations of ISSUE with other changes in the SCS. All regressions include month or year fixed effects. The regression with annual returns uses non-overlapping observations. Standard errors are clustered by time period. The sample covers nonfinancial Chilean firms from 1990 to 2009. Data are taken from Economatica, Fecus Plus, and Superintendencia de Valores y Seguros (SVS). Significance at the 10%, 5% and 1% is indicated by *, **, and ***, respectively.

	Dependent variable							
	Monthly returns				Annual returns			
Independent variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Beta	0.200	0.225	0.234	0.229	2.371	2.468	2.523	2.581
	(0.202)	(0.205)	(0.204)	(0.204)	(2.599)	(2.988)	(2.908)	(2.859)
BM	0.326***	0.335***	0.322***	0.328***	6.691	7.054	6.898	6.954
	(0.122)	(0.124)	(0.124)	(0.125)	(3.968)	(4.149)	(4.108)	(4.114)
MOM	0.018***	0.017***	0.017***	0.017***	0.245***	0.239**	0.238**	0.239**
	(0.004)	(0.004)	(0.004)	(0.004)	(0.082)	(0.086)	(0.087)	(0.087)
ME	-0.183***	-0.196***	-0.202***	-0.205***	-3.103***	-3.176***	-3.279***	-3.311***
	(0.055)	(0.056)	(0.056)	(0.057)	(0.826)	(0.689)	(0.710)	(0.708)
ISSUE		-1.109	-0.273			-9.029	3.405	
		(0.768)	(0.812)			(16.549)	(19.949)	
ISSUE x Dummy Iss w/Decrease SCS larger 5%			-4.473***				-64.614**	
			(1.385)				(24.348)	
Dummy Iss w/Decrease SCS larger 5%				-1.723***				-24.015***
				(0.500)				(5.404)
Dummy Iss w/Decrease SCS between 0% and 5%				-0.207				-0.586
				(0.393)				(3.849)
Dummy Iss w/o Change in SCS				0.048				-4.053
				(0.308)				(5.623)
Dummy Iss w/Increase in SCS between 0% and 5%				-0.321				0.514
				(0.399)				(10.321)
Dummy Iss w/Increase in SCS larger 5%				-0.788				-10.911
				(0.507)				(8.603)
Time fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of observations	19,456	18,522	18,522	18,522	1,608	1,552	1,552	1,552
R-squared	0.272	0.269	0.270	0.270	0.309	0.309	0.312	0.314

Table 6

Robustness checks: the effect of share issuance and changes in the stake of the controlling shareholder (SCS)

Panel regressions of monthly and annual returns (both multiplied by one hundred) where beta, ME, BM, MOM, and ISSUE are as in Table 5. The table also considers the interaction between ISSUE and four variables: the change in the stake of the controlling shareholder, the SCS before the issuance, the ratio of change in the SCS over the SCS before the issuance, the square of ISSUE, and a dummy for decreases in the SCS larger than 5% and that occurred through issuance (Iss) or block sales (Bs). All regressions include month or year fixed effects. Standard errors are clustered by time period. The regression with annual returns uses non–overlapping observations. The sample covers nonfinancial Chilean firms from 1990 to 2009. Data are taken from Economatica, Fecus Plus, and Superintendencia de Valores y Seguros (SVS). Significance at the 10%, 5% and 1% is indicated by *, **, and ***, respectively.

	Dependent variable													
	Monthly returns							Annual returns						
Independent variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Beta	0.21	0.24	0.22	0.23	0.229	0.230	0.236	2.60	2.47	2.64	2.40	2.648	2.643	2.540
	(0.21)	(0.21)	(0.21)	(0.21)	(0.205)	(0.204)	(0.204)	(3.05)	(3.02)	(3.08)	(3.02)	(3.077)	(3.023)	(2.898)
BM	0.31**	0.33***	0.31**	0.33***	0.308**	0.303**	0.320**	6.75	6.90	6.72	7.11	6.778	6.730	6.858
	(0.12)	(0.12)	(0.12)	(0.12)	(0.124)	(0.124)	(0.124)	(4.18)	(4.13)	(4.18)	(4.16)	(4.181)	(4.149)	(4.137)
MOM	0.02***	0.02***	0.02***	0.02***	0.0172***	0.0169***	0.0168***	0.25**	0.24**	0.25**	0.24**	0.249**	0.245**	0.238**
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00433)	(0.00433)	(0.00430)	(0.09)	(0.09)	(0.09)	(0.09)	(0.0856)	(0.0867)	(0.0869)
ME	-0.19***	-0.20***	-0.20***	-0.20***	-0.198***	-0.201***	-0.204***	-3.07***	-3.17***	-3.11***	-3.18***	-3.095***	-3.145***	-3.297***
	(0.06)	(0.06)	(0.06)	(0.06)	(0.0560)	(0.0560)	(0.0567)	(0.64)	(0.69)	(0.64)	(0.69)	(0.629)	(0.643)	(0.721)
ISSUE	-1.32*	-0.48	-1.23	-1.25	-1.207	-0.504	-0.293	-10.81	23.36	-9.55	-34.83	-9.444	2.836	3.115
	(0.79)	(2.27)	(0.78)	(2.17)	(0.775)	(0.843)	(0.811)	(18.19)	(45.47)	(17.98)	(21.56)	(17.73)	(22.18)	(19.60)
ISSUE x Change in SCS	8.98**							117.90**						
	(3.82)							(46.47)						
ISSUE x SCS		-1.05							-50.25					
		(3.09)							(53.70)					
ISSUE x (Change in SCS / SCS)			7.04**							84.28***				
			(2.98)							(28.78)				
$ISSUE^2$				0.21							36.87			
				(2.64)							(41.31)			
ISSUE x Dummy Iss w/Decrease SCS larger 5%						-3.631**	-4.116***						-62.80**	-59.48**
						(1.488)	(1.486)						(28.84)	(21.70)
Change in SCS					3.047**	1.920						23.16	2.019	
					(1.310)	(1.385)						(18.43)	(19.68)	
Dummy Decrease SCS larger 5% (Iss or Bs)							-0.174							-2.494
							(0.315)							(6.550)
Time fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of observations	18,229	18,339	18,229	18,522	18,229	18,229	18,522	1,530	1,538	1,530	1,552	1,530	1,530	1,552
R-squared	0.27	0.27	0.27	0.27	0.270	0.270	0.270	0.31	0.31	0.31	0.31	0.306	0.309	0.312

Table 7

Subsamples: the effect of share issuance and changes in the stake of the controlling shareholder (SCS)

Panel regressions of monthly returns (multiplied by one hundred) on the regression coefficient of stock returns on the market return over the previous 24 months (beta), the natural logarithm of end of June market value (ME), the natural logarithm of the previous year-end book-to-market ratio (BM), the past six-month stock return (MOM), the log change in the number of shares outstanding adjusted for stock splits in the previous calendar year (ISSUE), and the interaction between ISSUE and a dummy variable that identifies observations of ISSUE with a decrease in the stake of the controlling shareholder larger than 5% (Dummy Iss w/Decrease SCS larger 5%). Hot and cold markets are defined with respect to the sample median of firms with positive ISSUE (16%). Hot markets have more firms with positive ISSUE than the median. Institutional ownership refers to the ownership stake of domestic private pension funds in a company. All regressions include month fixed effects. Standard errors are clustered by time period. The sample covers nonfinancial Chilean firms from 1990 to 2009. Data are taken from Economatica, Fecus Plus, and Superintendencia de Valores y Seguros (SVS). Significance at the 10%, 5% and 1% is indicated by *, **, and ***, respectively.

	Dependent variable: monthly returns			
	Subsample of observations with			
Independent variables	Cold markets (1)	Hot markets (2)	Zero institutional ownership (3)	Positive institutional ownership (4)
Beta	-0.018	0.498	0.259	0.172
	(0.261)	(0.321)	(0.247)	(0.249)
BM	0.528***	0.054	0.308*	0.398***
	(0.185)	(0.159)	(0.180)	(0.152)
MOM	0.025***	0.007	0.019***	0.015***
	(0.006)	(0.006)	(0.007)	(0.005)
ME	-0.191**	-0.186**	-0.137	-0.294***
	(0.081)	(0.079)	(0.092)	(0.080)
ISSUE	-1.617**	1.032	0.200	-0.573
	(0.774)	(1.353)	(1.142)	(0.955)
ISSUE x Dummy Iss w/Decrease SCS larger 5%	-2.766	-6.047***	-4.473***	-3.660
	(2.032)	(1.685)	(1.618)	(3.161)
Number of observations	9,309	9,213	6,299	12,067
R-squared	0.246	0.290	0.215	0.325

Table 8
Block sales or purchases and changes in the stake of the controlling shareholder (SCS)

Panel A shows the mean and standard deviation of monthly and annual returns, the number of monthly observations, and the percentage of the full sample represenetd by firms in each of five groups split according to changes in the stake of the controlling shareholder caused by block sales or purchases. Equity issuance is zero in all of these groups. Panel B shows panel regressions of monthly and annual returns (both multiplied by one hundred) on the regression coefficient of stock returns on the market return over the previous 24 months (beta), the *natural* logarithm of end of June market value (ME), the natural logarithm of the previous year-end book-to-market ratio (BM), the past six-month stock return (MOM), the log change in the number of shares outstanding adjusted for stock splits in the previous calendar year (ISSUE), the interaction between ISSUE and a dummy variable that identifies observations of ISSUE with a decrease in the SCS larger than 5%, and a set of dummy variables that identifies observations of block sale or purchase with other changes in the SCS. All regressions include month or year fixed effects. Standard errors are clustered by time period. The sample covers nonfinancial Chilean firms from 1990 to 2009. Data are taken from Economatica, Fecus Plus, and Superintendencia de Valores y Seguros (SVS). Significance at the 10%, 5% and 1% is indicated by *, **, and ***, respectively.

Panel A: Descriptive statistics for block sales

Stake of controlling shareholder (SCS)	Average monthly returns	Standard deviation of monthly returns	Average annual returns	Standard deviation of annual returns	Number of monthly observations	Percentage of full sample
Block sale of more than 5%	2.63%	12.28%	27.18%	74.24%	770	3.63
Block sale between 0% and 5%	2.20%	11.44%	25.60%	79.93%	1199	5.65
No block sale and no issuance	2.73%	11.17%	25.06%	60.91%	11240	52.95
Block purchase between 0% and 5%	1.89%	10.92%	12.52%	46.82%	2780	13.10
Block purchase more than 5%	2.29%	11.52%	6.97%	41.22%	976	4.60

Table 8
(Cont.)

Panel B: Return regressions				
	Dependent variable			
Independent variables	Monthly returns		Annual returns	
Beta	0.213	0.233	2.301	2.509
	(0.204)	(0.204)	(2.957)	(2.895)
BM	0.326***	0.323***	7.013	6.921
	(0.125)	(0.124)	(4.218)	(4.140)
MOM	0.017***	0.017***	0.236**	0.237**
	(0.004)	(0.004)	(0.085)	(0.087)
ME	-0.193***	-0.202***	-3.161***	-3.271***
	(0.056)	(0.056)	(0.726)	(0.719)
ISSUE		-0.266		3.557
		(0.810)		(19.709)
ISSUE x Dummy Iss w/Decrease SCS larger 5%		-4.473***		-64.602**
		(1.385)		(24.366)
Block sale of more than 5%	0.291	0.089	3.652	1.752
	(0.435)	(0.386)	(9.295)	(7.427)
Block sale between 0% and 5%	0.084		1.385	
	(0.334)		(5.102)	
No block sale and no issuance	0.252		3.096	
	(0.233)		(4.356)	
Block purchase between 0% and 5%	0.098		0.067	
	(0.308)		(3.760)	
Block purchase more than 5%	0.058		-5.041	
	(0.444)		(5.628)	
Time fixed effects	Yes	Yes	Yes	Yes
Number of observations	18,522	18,522	1,552	1,552
R-squared	0.269	0.270	0.309	0.312

Table 9

The decision to issue equity and changes in the stake of the controlling shareholder (SCS)

This table shows probit regressions for general equity issuance and equity issuance with different changes in the stake of the controlling shareholder. The independent variables are all lagged by one year. Independent variables include firm characteristics: return on equity (ROE), the natural logarithm of book assets, and leverage; stock market variables: the natural logarithm of the previous year-end book-to-market ratio (BM), annual stock returns, annual stock turnover, the stock's idiosyncratic volatility, annual market return, and annual market turnover; and ownership variables: the SCS, the difference between the SCS and cash flow rights, and a dummy variable that identifies if there was a change in the SCS. The sample covers nonfinancial Chilean firms from 1990 to 2009. Data are taken from Economatica, Fecus Plus, and Superintendencia de Valores y Seguros (SVS). Standard errors were calculated using cluster by time period. Significance at the 10%, 5% and 1% is indicated by *, **, and ***, respectively.

	Dependent variable			
Independent variables	Issuance (1)	Issuance with decrease in the SCS >5% (2)	Issuance without decrease in the SCS >5% (3)	Issuance with increase in the SCS >5% (4)
Firm characteristics at *t* -1:				
ROE	-0.237	-0.211	-0.170	-0.925*
	(0.269)	(0.276)	-0.265	(0.538)
Log book assets	0.011	-0.090*	0.018	-0.019
	(0.039)	(0.054)	(0.041)	(0.042)
Leverage	0.678*	0.367	0.623	1.031**
	(0.374)	(0.381)	(0.389)	(0.520)
Stock market variables at *t* -1:				
Stock return	-0.042	0.312**	-0.143*	-0.044
	(0.096)	(0.139)	(0.086)	(0.187)
Turnover	0.569	0.964***	0.397	0.429
	(0.360)	(0.339)	(0.398)	(0.543)
Idiosyncratic volatility	0.270	0.455*	0.175	-0.378
	(0.179)	(0.272)	(0.209)	(0.338)
BM	-0.023	0.181*	-0.033	0.170*
	(0.079)	(0.101)	(0.083)	(0.090)
Market return	0.091	0.435	0.096	0.330
	(0.166)	(0.374)	(0.178)	(0.353)
Market turnover	0.113	3.552**	-0.159	-2.129*
	(0.617)	(1.502)	(0.598)	(1.234)
Ownership variables at *t* -1:				
Stake of controlling shareholder (SCS)	-0.716**	0.355	-0.908**	-1.010**
	(0.341)	(0.520)	(0.358)	(0.495)
SCS - cash flow rights	0.459	-0.674	0.569	0.178
	(0.420)	(0.689)	(0.426)	(0.472)
Dummy change in SCS	0.326***	0.494**	0.321***	0.278
	(0.106)	(0.233)	(0.117)	(0.184)
Constant	-1.202**	-2.526***	-1.128**	-1.246*
	(0.492)	(0.851)	(0.511)	(0.648)
Number of observations	1569	1569	1569	1569

Table 10

Post-issuance firm performance, financing patterns, and investment

Panel regressions with the following dependent variables: capital expenditures (annual differences in property, plant, and equipment), asset growth, return on equity (ROE), debt growth, leverage, dividends, and turnover. We follow the definitions of Kim and Weisbach (2008) as specified in the main text. All dependent variables are measured over an interval between one and five years following the measurement of independent variables. Independent variables include a dummy identifying share issuances that imply a large decrease (more than 5% in absolute value) in the stake of the controlling shareholder (SCS) (Dummy Iss w/Decrease SCS larger 5%), a dummy for the rest of the equity issues (Dummy Iss w/o Decrease SCS larger 5%), the natural logarithm of book assets, leverage, the log book-to-market ratio (BM), the SCS, and the difference between the SCS and cash flow rights. All regressions include year and firm fixed effects. Standard errors are clustered by firm. The sample covers nonfinancial Chilean firms from 1990 to 2009. Data are taken from Economatica, Fecus Plus, and Superintendencia de Valores y Seguros (SVS). Significance at the 10%, 5% and 1% is indicated by *, **, and ***, respectively.

	Dependent variable								
	Capital expenditures			Asset growth			ROE		
	Same year	Three years	Five years	Same year	Three years	Five years	Same year	Three years	Five years
Independent variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Issuance variables in *t:*									
Dummy Iss w/Decrease SCS larger 5% (1)	0.088***	0.162***	0.078	0.289***	0.224***	0.044	0.011	-0.031***	-0.031**
	(0.026)	(0.047)	(0.099)	(0.037)	(0.082)	(0.058)	(0.023)	(0.011)	(0.013)
Dummy Iss w/o Decrease SCS larger 5% (2)	0.037***	0.054**	0.097***	0.099***	0.091***	0.041	-0.022*	-0.001	-0.003
	(0.009)	(0.022)	(0.027)	(0.016)	(0.028)	(0.033)	(0.013)	(0.010)	(0.009)
Firm characteristics in *t* -1:									
Log book assets	-0.010	-0.111***	-0.262***	-0.064***	-0.362***	-0.643***	-0.030	-0.055***	-0.056***
	(0.007)	(0.031)	(0.063)	(0.015)	(0.049)	(0.072)	(0.022)	(0.020)	(0.018)
Leverage	-0.118***	-0.247***	-0.437**	-0.259***	-0.361***	-0.542***	-0.062	0.042	0.086*
	(0.027)	(0.090)	(0.194)	(0.044)	(0.125)	(0.165)	(0.061)	(0.055)	(0.045)
BM	-0.020***	-0.044***	-0.063**	-0.042***	-0.054	-0.036	-0.072***	-0.049***	-0.028*
	(0.006)	(0.016)	(0.024)	(0.015)	(0.042)	(0.046)	(0.013)	(0.017)	(0.015)
Ownership variables in *t* -1:									
Stake of controlling shareholder (SCS)	-0.019	-0.160*	-0.359**	-0.006	-0.054	-0.170	0.011	0.000	-0.003
	(0.031)	(0.089)	(0.144)	(0.056)	(0.142)	(0.172)	(0.036)	(0.032)	(0.034)
SCS - cash flow rights	-0.058	-0.150	-0.209	-0.043	-0.171	-0.522***	0.020	0.013	-0.016
	(0.038)	(0.117)	(0.219)	(0.117)	(0.224)	(0.182)	(0.058)	(0.051)	(0.045)
p -value test (1)=(2)	7.1%	4.1%	85.4%	0.0%	10.0%	96.1%	15.5%	1.6%	4.8%
Year and firm fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of observations	1,799	1,503	1,234	2,364	2,036	1,718	2,362	2,028	1,706
R -squared	0.131	0.217	0.343	0.213	0.350	0.517	0.126	0.198	0.198

Table 10

(cont.)

	Dependent variable								
	Debt growth			Leverage			Turnover		
	Same year	Three years	Five years	Same year	Three years	Five years	Same year	Three years	Five years
Independent variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Issuance variables in *t:*									
Dummy Iss w/Decrease SCS larger 5% (1)	0.079**	0.136***	0.022	-0.053***	0.016	-0.002	0.081*	0.041*	0.014
	(0.033)	(0.051)	(0.057)	(0.018)	(0.020)	(0.025)	(0.042)	(0.021)	(0.017)
Dummy Iss w/o Decrease SCS larger 5% (2)	0.019	0.013	-0.001	-0.016*	-0.024**	-0.018*	0.010	0.002	0.004
	(0.013)	(0.022)	(0.026)	(0.008)	(0.010)	(0.009)	(0.014)	(0.014)	(0.011)
Firm characteristics in *t* -1:									
Log book assets	-0.032*	-0.182***	-0.344***	0.020***	0.031**	0.024	0.015	-0.003	-0.008
	(0.017)	(0.030)	(0.040)	(0.008)	(0.014)	(0.016)	(0.010)	(0.014)	(0.014)
Leverage	-0.379***	-0.695***	-1.162***	0.646***	0.250***	-0.033	0.001	0.030	0.045
	(0.046)	(0.085)	(0.138)	(0.040)	(0.040)	(0.046)	(0.032)	(0.032)	(0.033)
BM	-0.022**	-0.050***	-0.063***	-0.004	-0.009	-0.022***	-0.014	-0.002	0.007
	(0.010)	(0.019)	(0.023)	(0.004)	(0.009)	(0.008)	(0.011)	(0.010)	(0.008)
Ownership variables in *t* -1:									
Stake of controlling shareholder (SCS)	0.014	-0.073	-0.213	0.034	0.026	-0.011	-0.256***	-0.225***	-0.190***
	(0.040)	(0.101)	(0.139)	(0.023)	(0.044)	(0.048)	(0.039)	(0.046)	(0.051)
SCS - cash flow rights	-0.056	-0.239*	-0.508***	-0.017	-0.091	-0.127**	0.038	0.066	0.046
	(0.071)	(0.132)	(0.155)	(0.035)	(0.069)	(0.062)	(0.054)	(0.050)	(0.046)
p -value test (1)=(2)	9.3%	1.9%	70.0%	5.4%	5.9%	52.6%	12.4%	19.8%	68.5%
Year and firm fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of observations	2,361	2,037	1,719	2,364	2,036	1,718	2,350	2,026	1,716
R -squared	0.168	0.322	0.485	0.481	0.139	0.048	0.117	0.144	0.134

Table 11

Changes in market betas for issuers

The table shows average changes in market betas and their respective *t*-statistics. Market betas are computed using a 24-month rolling window of previous returns. Betas are grouped in five categories according to changes in the stake of the controlling shareholder (SCS) caused by the equity issue. Month *t* refers to the month of the return used in previous regressions. For example, the change □[*t*] - □[*t*-24] refers to the difference between the current beta and the beta computed in month *t*-24 (using data from *t*-25 through to *t*-49). The sample covers nonfinancial Chilean firms from 1990 to 2009. Data are taken from Economatica, Fecus Plus, and Superintendencia de Valores y Seguros (SVS).

	Average change in beta (*t*-statistics)		
Stake of controlling shareholder (SCS)	β[*t*] - β[*t* -24]	β[*t* +12] - β[*t* -12]	β[*t* +24] - β[*t*]
Decreases by more than 5%	0.19	-0.02	0.05
	(4.18)	(-0.39)	(1.59)
Decreases between 0% and 5%	-0.01	-0.06	-0.02
	(-0.14)	(-1.69)	(-0.55)
Does not change	0.14	-0.08	-0.11
	(4.82)	(-2.89)	(-3.98)
Increases between 0% and 5%	-0.16	0.04	0.17
	(-5.90)	(1.43)	(5.78)
Increases by more than 5%	-0.07	0.04	0.10
	(-2.24)	(1.22)	(2.19)

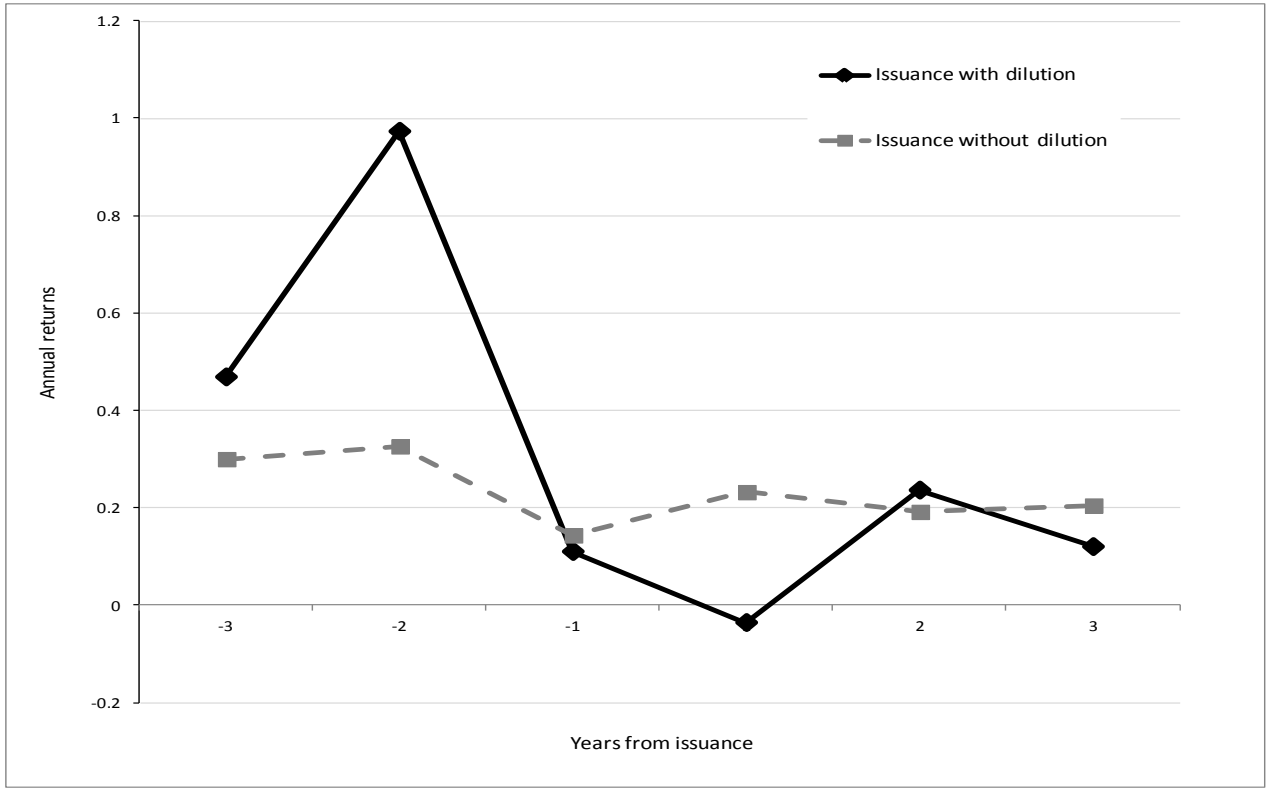


Figure 1: Average annual returns of issuers in event time

The figure shows average annual returns for firms that issue shares, distinguishing between those with and without a strong dilution of the controlling shareholder's stake (with dilution and without dilution). The x-axis shows years from portfolio formation (June of year *t*). Year one, from July of year *t* through June of year *t*+1, is the first year after portfolio formation. Year two, from July of year *t*+1 through June of year *t*+2, is the second year after portfolio formation, and so on. Issuance occurs in year *t*-1.

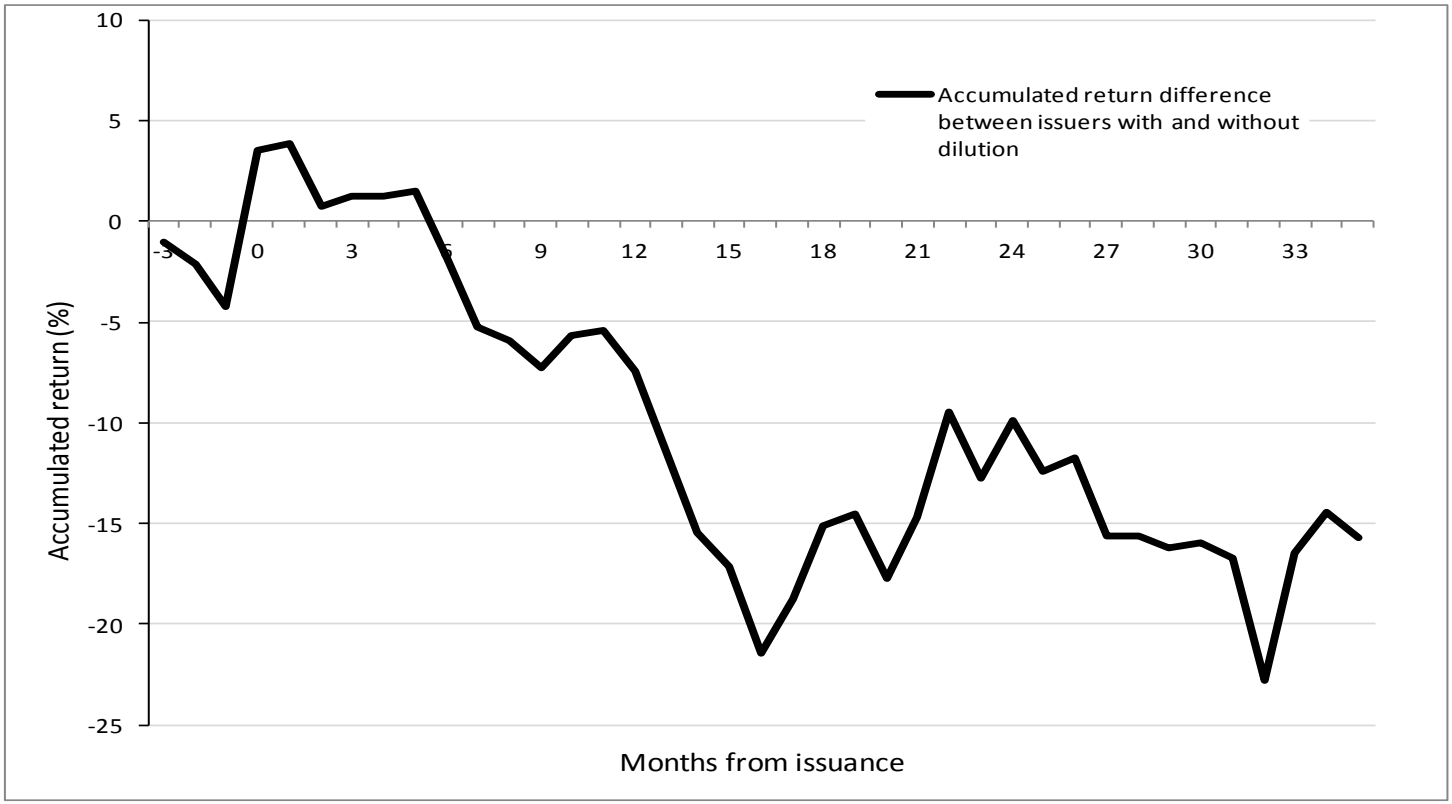


Figure 2: Accumulated return difference between diluting issuers and other issuers in event time

The figure shows the accumulated return difference (in percentage points) between issuers with and without a strong dilution of the controlling shareholder.

The x-axis shows months from the effective month of issuance (month 0).

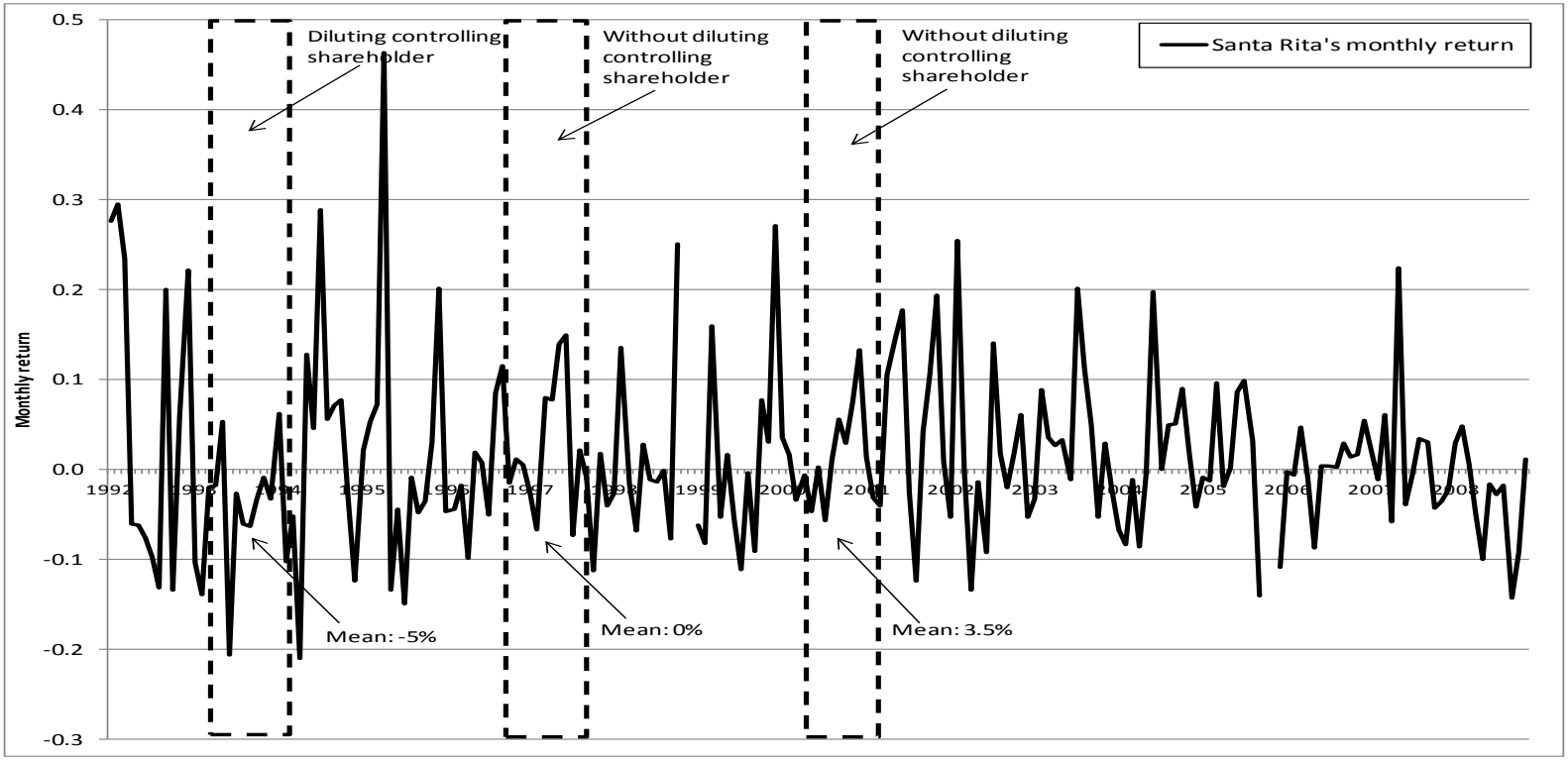


Figure 3: Monthly returns of Santa Rita (1992-2009)

The figure shows Santa Rita's monthly stock return between 1992 and 2009. The highlighted windows represent periods of 12 months (from July of year *t* through June of year *t*+1) after a share issuance in year *t*-1. The first window corresponds to the period following a share issuance when the controlling shareholder was diluted. The stake of the controlling shareholder did not decrease in the other two share issuances. The mean is the average return over the 12-month window**.**

IV. Blocks, contractual incompleteness and agency problems

Abstract

Why do firms acquire blocks of shares in other companies? Using a sample of Western European deals between 1997 and 2013 I study blocks' determinants. Blocks ease contractual incompleteness' problems, supporting the property rights' theory as opposed to transaction cost economics. Blocks are more (less) common when target's (acquirers) initiative is relatively more important. Consistent with a potential expropriation, blocks are less likely when the target is from a country with poor minority investor protection and when it has multiple class shares that separate voting and cash flow rights. Surprisingly blocks do not seem to alleviate targets' financial constraints.

1. Introduction

Firms purchase blocks of shares in other companies for a variety of reasons. Blocks can alleviate contractual incompleteness problems by aligning parties' incentives (Allen and Phillips (2002), Fee et al (2006) and Ouimet (2013)). They can also ease targets' financial constraints through a cash infusion (Fee et al (2006) and Liao (2010)). However, blocks also expose the acquirer to a potential expropriation by target's controlling shareholder, or tunneling (Johnson et al (2000)).

In this paper I study blocks' determinants using a sample of Western European deals where acquirers obtain a block or targets' control, as in Ouimet (2013). This sample offers an ideal setting for the study of blocks. First, it allows me infer blocks' determinants both from targets and acquirers' characteristics before the deal and from their behaviour after the deal (Ouimet (2013) and Pagano, Panetta and Zingales (1998)). Second, it also enables me to disentangle between the predictions from the transaction cost economics (Williamson (1971, 1979) and Klein et al (1978)) and the property rights' theory (Grossman and Hart (1986), Hart and Moore (1987), Hart (1995), and Aghion and Tirole (1994)). Although both share the role of hold-up problems and incomplete contracts, they have very different predictions (Whinston (2003) and Gibbons (2005)). On the one hand the transaction cost economics emphasizes how integration prevents ex-post haggling and negotiation. Parties that make relation-specific investments expose themselves to ex-post renegotiation, the so called hold-up problem (Klein et al (1978)), which blocks can mitigate (Pisano (1989)). Blocks should take place when both targets and acquirers have more specific assets. For instance, Ouimet (2013) shows that blocks are more common when the acquirer has a large number of patents, increasing the specificity of its assets. Also, investment should increase for both parties after the deal, as hold-up problems are not an issue anymore (Allen and Phillips (2002)). On the other hand, the property rights theory emphasizes how the relative importance of parties'

investments in non-contractibles shapes integration. Research and development (R&D) intensity increases parties' importance, as it can be impossible to contract upon it (Nelson and Winter (1977), Pisano (1989) and Aghion and Tirole (1994)). As highlighted by Acemoglu et al (2010) R&D intensity has opposing effects on integration and blocks' acquisitions. Targets' R&D intensity makes blocks acquisitions more likely, as blocks preserve target's initiative (Aghion and Tirole (1994)). Acquirer's R&D intensity makes control acquisitions more likely, as it increases the importance of acquirers' investments. Another prediction from the property rights' theory is that after a control acquisition the target loses its initiative. Targets that remain independent should invest more than targets that become subsidiaries.

Third, this database allows me to study the role of agency problems in block's acquisitions, a dimension that has been largely unnoticed in previous studies with US data. Western Europe offers an array of institutional settings where minority investor protections varies significantly (Djankov et al (2008)), and where agency problems can also be measured at the firm level. Block acquisitions should take place in countries where minority investor protection is relatively good and targets where agency problems are not a concern. Finally, I can test whether blocks alleviate targets' financial constraints. In the sample I study financial development varies tremendously at the country level. Targets also come from a broad range of industries, providing variation in financial dependence at the industry level. The sample also considers listed and private targets, typically assumed to be more financially constrained. Then if blocks ease targets' financial constraints through a cash infusion they should be more common in financially underdeveloped countries and financially dependent industries. They should also be more common among private and smaller targets, two proxies for firms' financial constraints (Hadlock and Pierce (2010)).

The results show that blocks alleviate contractual incompleteness problems, in line with existing evidence (Pisano (1989), Allen and Phillips (2002), Fee et al (2006) and Ouimet

(2013)). More interestingly, I find that block's acquisitions support the predictions from the property rights' theory as opposed to transaction cost economics. Blocks are more likely to take place when targets' initiative is more important, which I proxy through several measures: acquirers' citations to targets' patents, which show that acquirers' patents build on knowledge previously developed by the target (Trajtenberg (1990) and Belenzon (2012)); and the number of patents targets hold, showing that they are more R&D intensive. Oppositely, an increase in acquirers' initiative is related to control acquisitions. Targets that cite acquirers' patents are more likely to be fully controlled. Similarly, acquirers that have a large number of patents are more inclined to obtain control. Consistent with this evidence, I also find that targets of blocks invest more in intangible fixed assets like advertising, software and patents, after the deal takes place when compared to targets of control acquisitions. After the deal these targets also have more patents and citations, as in Seru (2010).

I also find that proxies of agency problems prevent blocks from taking place. Blocks are unlikely to take place in firms where there is a separation between voting and cash flow rights. When studying whether blocks ease financial constraints, the evidence is far from conclusive. Only in a few specifications blocks are more common in financially dependent countries and industries. Furthermore, I do not find that targets of blocks increase investments and decrease cash holdings after the deal, as would be the case were these financially constrained before the deal (Erel et al (2013)). Overall, the fact that blocks do not seem to ease targets' financial constraints is surprising for two reasons. First, in the sample of Western European countries I consider financial development is significantly lower than that of the US (Djankov et al (2008)), where previous studies find that blocks ease financial constraints (Fee et al (2006)). Second, more than 65% of blocks' targets are private firms, a commonly used proxy for financial constraints. If anything at all, easing targets' financial constraints should matter more in this sample than in US listed firms.

As robustness check I also examine a number of related hypotheses. For instance, Ouimet (2013) suggests that acquirers' financial constraints might prevent them from obtaining target's control. The results in this sample seem to indicate that this is not the case. Larger and listed acquirers are more likely to acquire blocks. Ouimet (2013) also points out to the importance of preserving targets' managerial incentives. However, in the sample of mainly private deals I consider this is not an issue. This might also be due to the fact that executive compensation and ownership structure in Continental Europe differ from the traditional US firm (La Porta et al (1999), Conyon and Schwalbach (2000) and Enriques and Volpin (2007)).

The results in this paper contribute to two different strand of the literature. First, they contribute to the literature on organizational economics supporting the property rights' theory. Block acquisitions are more (less) common when targets' (acquirers) initiative is relatively more important, and targets of block acquisitions invest more in non-contractible investments (like intangible fixed assets and patents) after the deal. Also, acquisitions of blocks are related to an increase in targets' patenting activity after the deal. In contrast, previous empirical research on the property rights theory (PRT) finds that "the existing empirical literature provides little guidance regarding the applicability of the PRT" (Whinston (2003)) and that "virtually all predictions from transaction-cost analysis appear to be borne out by the data" (Lafontaine and Slade (2007)). Furthermore, when specifically testing Aghion and Tirole's (1994) model Lerner and Merges (1998) find that their "results stand in contrast to much of the theoretical literature on the theory of the firm".

The second strand of the literature refers to minority blocks. In the US blocks are an uncommon phenomenon which seems to have both short and long term purposes. In the short term, they reduce information asymmetries and lead to a subsequent M&A by the same acquirer (the traditional toehold in Betton et al (2009)), or help the target being taken over by

another firm (Greenwood and Schor (2009)). In the long term blocks not only help to develop product market relationships (Allen and Phillips (2000), Fee et al (2006), and Ouimet (2013)), they also help financially constrained targets (Fee et al (2006) and Liao (2010)). With respect to this literature I show that blocks are common in Western Europe, where institutional settings differ substantially from those of the US. I also show that targets' agency problems play a significant role, preventing deals from taking place when expropriation is likely.

The rest of the paper is as follows. Sections two and three review both data and theories; sections four and five show the empirical analysis, with section six concluding.

2. Data

a. Sources

I obtain data from a variety of sources. The first source is Zephyr, the Bureau van Dijk's transactions database from which I obtain deal data. This includes acquirers and targets' characteristics before the deal: assets, return over assets (ROA), leverage, and listed status, among others. It also includes characteristics of the deal itself such as the stake acquired, the initial stake the acquirer had in the target (if any) and the type of payment. I consider deals where the target is from Austria, Belgium, Denmark, Finland, France, Germany, Great Britain, Greece, Ireland, Italy, Luxemburg, Norway, Netherlands, Portugal, Spain, Sweden, and Switzerland. Deals must have been completed between 1997 and 2013. One advantage of Zephyr when compared to previous studies is that it also offers data on deals among private firms. Acquirers and targets can be either private or public firms. The second source is Amadeus, a European database of public and private companies' accounting information also from Bureau van Dijk. Since Zephyr provides a unique firm identifier, I obtain acquirers and targets' balance sheet and income statement data from Amadeus both

before and after the deal takes place. For targets and acquirers I obtain firm data for a period of seven years: the year before the deal, the year the deal takes place and five years after.

The third source is the European Patent Office (EPO). Zephyr recently started providing patent data from EPO, matching each patent with the firm that owns it through Bureau van Dijk's unique firm identifier. For these patents I obtain detailed information from PATSTAT, EPO's Worldwide Patent Statistical Database. PATSTAT provides data on the number of citations per patent, an indicator of patent quality (Trajtenberg (1990)). It also provides detailed data on patent's citations, i.e., which patents are cited by any given patent. This is crucial as it offers a look at previous knowledge on which patents builds on (Trajtenberg (1990) and Belenzon (2012)). As noted by Belenzon (2012), "a citation from patent B to an antecedent patent A indicates that patent A contains a piece of knowledge on which patent B builds". I am able to construct three variables with these data. Targets' citations to acquirers' patents and acquirers' citations to targets' patents, i.e., the number of times acquirers' (targets) patents cite targets' (acquirers) patents; the number of patents targets and acquirers have, and finally, the citations over patents ratio. I use patent data for a period starting 15 years before the deal. The choice of a 15 year period is given as then patents are close to expire (Belenzon (2012) and Ouimet (2013)). However, the results in the paper are also robust to the use of 10 and 5 year periods.

I also obtain data on firm's financial dependence both at the country and industry levels as in Belenzon, Berkovitz and Rios (2013). From the World Bank I obtain variables that capture country's financial development in terms of its stock market and its banking sector: domestic credit, which is the ratio of private credit by deposit money bank and other financial institutions to GDP, and market capitalization of listed companies over GDP. To capture industry's financial dependence I construct three variables using Compustat data between 1997 and 2013 at the three-digit SIC level. These are external dependence, defined

as the ratio between capital expenditures net of cash flows from operations and capital expenditures; trade credit, the ratio between accounts payable and total assets, and, investment intensity, defined as capital expenditures over total assets. Finally, I use country and firm-level proxies of agency problems. At the country level I use common law, accounting standards and the anti-self-dealing index from La Porta et al (1999) and Djankov et al (2008), which measures minority investor protection at the country level. I use these proxies in trying to understand whether investor protection encourages blocks acquisitions at the country level, following Rossi and Volpin (2004) in their analysis of control acquisitions. At the firm-level I use a dummy variable that is equal to one if the target has a divergence between voting and cash flow rights through multiple class shares (see Villalonga and Amit (2006) for a similar approach). The separation between voting and cash flow rights is a commonly used proxy for agency problems at the firm level (Lin, Ma, Malatesta, and Xuan (2011)). Unfortunately these firm-level proxies of agency problems are only available for listed firms. However, this analysis would be incomplete without controlling for controlling shareholders' ownership stake (Claessens et al (2002)), for which I use target's free float from DataStream as in Foley and Greenwood (2010). The free float is the number of shares (in %) available to ordinary shareholders, i.e., not held by controlling shareholders such as families, investment vehicles or the government.

b. Control

A key issue is to understand which transactions are block acquisitions and which carry control over the target. Blocks acquisitions are deals where the acquirer ends with less than 20% of target's shares in listed targets, and less or equal than 50% in private targets. Defining control acquisitions depends on whether the target is a public or private firm. For private firms, control is obtained when the acquirer has less than 50% of target's shares before the deal, and more than 50% after. This is less straightforward for public firms, and I

follow Dyck and Zingales (2004). They define control transfers as deals where the acquirer holds less than 20% of target's shares before the deal and acquires 10% or more, eventually holding more than 20%. Control acquisitions may involve one or several deals where the acquirer builds up his stake. It is important to note that the 20% control threshold has being widely used in the ownership literature, starting with La Porta et al (1999) (for a review of the literature see Adams and Ferreira (2008)).

c. Summary Statistics

While there are more than 100,000 block and control acquisitions in Zephyr, there is complete data for little more than 29,000 deals. Table 1 provides a description of the database for these deals. Panel A shows a description of blocks and control acquisitions in volume, value and deal characteristics. Out of 29,075 deals, 6,421 are blocks and 22,654 control acquisitions. As a comparison, recent research using US listed firms finds a significantly smaller number of blocks: Allen and Phillips (2000) find 402 blocks, Fee et al (2006) 338 and Ouimet (2013) 254. Most blocks occur in private targets (4,098), and the average block value is €55 million. Blocks convey 11% of target's shares, and acquirer's final stake is 16%. This figure is even smaller for listed targets, where the final stake is 7.2%. Since the average listed firm in Italy, Germany and France has a controlling shareholder holding approximately 50% of company's votes (Faccio and Lang (2002)), it is clear that the acquirer does not obtain target's control[21]. As expected, control acquisitions have a much larger acquired (95%) and final stake (97%). Most blocks are paid in cash (42%).

Table 1, Panel B, looks at firm's characteristics the year before the deal. Blocks targets are larger, less indebted and less profitable (in terms of ROA) than the average control target. These differences also hold for acquirers: blocks' acquirers are larger, less indebted,

[21] Both in the UK and Ireland large controlling shareholders are unusual (La Porta et al (1999) and Faccio and Lang (2002)). Nevertheless, more than 80% of firms in the UK and 98% of firms in Ireland have a shareholder that holds more than 5% of firms' voting rights (Faccio and Lang (2002)). Over 35% of firms in the UK and Ireland have a controlling shareholder that holds more than 20% of voting rights (Faccio and Lang (2002)).

and more profitable than control acquirers. Finally, Table 1, Panel C looks at differences in patents, citations, and financial dependence. There are large differences in citation patterns between block and control acquisitions. There are also large differences in the amount of patents and citations they have. Blocks' targets have the largest number of patents (0.60), followed by acquirers' of control (0.36) and acquirers of blocks (0.27). Targets that are controlled are the ones with fewer patents (0.10). This trend repeats when looking at the citations over patents ratio, a proxy for patent quality (Trajtenberg (1990)). Targets that remain independent are the ones with better patents (0.84 citations per patent), followed by acquirers of control (0.54), acquirers of blocks (0.45), and finally, fully acquired targets (0.18). Nevertheless, firms that have patents are a clear minority. Most firms do not have patents. These firms are still considered in the empirical analysis and thus have zero patents. Next, blocks are more common in countries with more developed capital markets. It is not clear whether blocks are more common in financially dependent industries. Targets of blocks are common in investment intensive industries, but whose trade credit ratio is lower than that of targets of control. Finally, the correlations between variables and their significance can be seen in Table 3.

3. Why Do Firms Acquire Blocks?

Hereby I review the theories that help to explain why block's acquisitions take place. First I review both contractual incompleteness' theories (transaction cost economics and the property rights' theory). In Table 1 and in the text I outline the main predictions from each theory.

a. Contractual Incompleteness: Transaction Cost Economics

Williamson (1971, 1979) and Klein et al (1978) develop the mostly informal transaction cost economics (TCE). In this theory, in a supplier/customer relation both parties can make relation-specific investments. Given their specificity these investments have a

larger value inside than outside the relation. This generates incentives for the parties to re-negotiate the contract once the investments are done, creating the hold-up problem. If the parties could write and enforce complete contracts, foreseeing every possible contingency, hold-up problems would not be an issue. This is, unfortunately, not the case. Complete contracts are extremely difficult (if not impossible) to write, and if they were, it might be too costly to do so. For the transaction cost economics non integration and the haggling over these rents can be less efficient than integration. As Williamson (1971) describes it: "fiat is a more efficient way to settle minor conflicts (say differences of interpretation) than is haggling or litigation". Therefore, integration is a solution to hold-up problems, as it aligns parties' incentives. Blocks can also alleviate hold-up problems, as they can align the incentives of both parties (Pisano (1989), Allen and Phillips (2002), Fee et al (2006) and Ouimet (2013)).

The empirical predictions from this theory, as already noted by Pisano (1989) and Ouimet (2013), are that firms with more specific assets are more likely to be parts of blocks' acquisitions. Acquirers and targets patents, which are unique and thus increase the specificity of firms' assets, should be positively related to block acquisitions (Ouimet (2013)). Asset specificity also increases when firms have better patents, i.e., more citations and a larger citation over patents' ratio. The transaction cost economics also predicts what should happen after the deal. Both firms should increase investments, as they do not fear hold-up problems anymore.

b. Contractual Incompleteness: Property Rights Theory

Grossman and Hart (1986), Hart and Moore (1987), and Hart (1995) develop the formal property rights' theory (PRT). While it shares with the transaction cost economics the importance of specific investments and contracting problems, it has a different emphasis (Whinston (2003) and Gibbons (2005)). In this theory integration allocates residual control rights while focusing on non-contractible investments. Integration increases the share of the

surplus one party will receive, which in turn increases its incentives to invest in non-contractible investments. Therefore if one party's investments are more important to obtain the surplus than those of the other, the important party should control both firms. In the same line, if both parties' investments are important, they should remain independent. Integration encourages one party's investment and leads to a loss of initiative by the other. As Gibbons (2005) suggests: "the cost of control is the loss of initiative".

Aghion and Tirole (1994) extend the property rights' theory to the case of blocks and R&D. They show that for a firm that needs an intensive R&D input it can be optimal to acquire a block of shares in the supplying firm. Since R&D projects are plagued with contractual incompleteness problems, it might be impossible to write a contract specifying which kind of input the firm needs, and the conditions under which it must be developed. The other alternative is for the firm to vertically integrate (through an M&A for instance). The problem, as noted already, is that integration might not provide enough incentives for the supplier to exert effort and produce the input the firm needs. The in-between option, to purchase a block, both keeps supplier's incentives to develop a specific product while providing incentives for the acquiring firm to help develop the product he needs (Aghion and Tirole (1994) and Dasgupta and Tao (2000)).

Several empirical predictions arise from this model. Consistent with the importance of targets' initiative, targets whose patents are cited by those of the acquirer should be part of block acquisitions. In such a case acquirers' patents build on targets' previous knowledge, indicating that targets' initiative is crucial for the relation. Targets with more and better patents are firms whose initiative is important and should be part of block acquisitions, preserving their initiative. By a similar token, acquirers whose patents are cited by the target and who have more and better patents should obtain targets' control, given that their initiative is now more relevant (Aghion and Tirole (1994) and Acemoglu et al (2010)). After the deal,

targets of block acquisitions should invest more in intangible assets when compared to targets of control acquisitions. Also, they should have more and better patents (Grossman and Hart (1986)).

c. Minority Investor Protection

Target's agency problems should play a role in block acquisitions. In countries where minority investor protection is relatively poor, acquirers might prefer not to engage in block acquisitions as controlling shareholders can easily take advantage of them (the so called tunnelling (Johnson et al (2000))). As a matter of fact, Rossi and Volpin (2004) show that control acquisitions are more common in countries with better minority investor protection. These countries have more deals, both when considering within and cross-country deals. At the firm level, acquirers might also avoid blocks' acquisitions in firms where there is a divergence between voting and cash flow rights, a commonly used proxy for agency problems (Lin, Ma, Malatesta, and Xuan (2011)).

Empirically, block acquisitions should be more common in countries with better protection to minority investors, where expropriation is more difficult. This should be particularly true for cross-country block acquisitions. Countries with better regulatory standards should have a larger proportion of cross-country of deals Blocks should also be uncommon in firms where agency problems are a concern. For instance, those were there is a separation between voting and cash flow rights.

d. Financial Constraints

Information asymmetries may preclude firms from issuing shares and investing in profitable projects, as in Myers and Majluf (1984). If other sources of funds are exhausted, a share issuance acquired by one better informed party might help solving the problem. Under this view, blocks provide targets with a cash infusion and alleviate their financial constraints. There is mixed evidence for this hypothesis. While Allen and Phillips (2000) find that blocks

are not related to easing targets' financial constraints, Fee et al (2006), Ouimet (2013) and Liao (2010) do. The empirical prediction from this theory is that small, private, and highly indebted firms should be targets of blocks' acquisitions, as smaller and private firms are likely to be more financially constrained (Hadlock and Pierce (2010)). Also, blocks should be more common in countries with less developed financial markets and capital intensive industries. Furthermore, blocks' targets should increase their investments and reduce their cash holdings after the deal, showing that their financial constraints were relieved (Erel, Jang and Weisbach (2013)).

e. Targets' Managerial Incentives/Acquirers' Financial Constraints

In a related paper Ouimet (2013) studies the costs of acquiring control in U.S. public firms by comparing minority and majority blocks' acquisitions. She finds that control acquisitions are common when it is important to preserve targets' management equity incentives. On the one hand, larger targets that may become significant divisions in the merged firm are fully integrated. On the other, smaller targets are not, preserving their management's equity incentives. Yet it might be the case that acquirers are financially constrained and are thus unable to take control over the target. In that case, they would acquire a block. The predictions from these two hypotheses oppose each other. The empirical prediction from the target managerial hypothesis is that listed and smaller targets are more likely to be part of block acquisitions. In the acquirers' constraints hypothesis larger targets are more likely to be part of a block acquisition. Also, financially constrained acquirers are more likely to purchase a block. Acquirers in less financially developed countries, or in capitally intensive industries, should purchase blocks.

4. Cross Sectional Analysis

In this section I study why acquirers prefer blocks as opposed to obtaining target's control. Following Ouimet (2013) I estimate a probit model where $p_{i,t}$ is the probability that the acquirer obtains a block. I model $p_{i,t}$ as a function of variables that should lead firms to acquire blocks: target and acquirer's characteristics, R&D variables, country and industry's financial dependence, agency proxies and a set of controls, including deal characteristics (payment in shares or cash and the initial stake the acquirer had in the target), year dummies and acquirers and targets' country and industry (at the 1-digit SIC code) fixed-effects[22]. Then,

$$p_{i,t} = \Phi\left(Firms' \; Characteristics_{\; i,t-1} + Deal \; Characteristics_{i,t} + Controls_{i,t}\right)$$

Where Φ is the cumulative standard normal distribution. Only firm level accounting variables are measured the year before the deal, avoiding changes caused by the deal itself. Standard errors are robust and clustered at the acquirer level. Table 4 reviews the evidence on contractual incompleteness problems. Table 5 looks at agency problems while Table 6 examines targets' financial constraints. Table 7 analyzes the importance of acquirers' financial constraints.

a. Transaction Cost Economics and the Property Rights Theory

Table 4 looks at patent data, trying to disentangle between the transaction cost economics and the property rights theory. The first four columns look at the whole sample, while columns five to eight focus on deals where one of the parties has patents. For ease of interpretation the Table shows marginal effects. Consistent with the predictions from the property rights' theory on the importance of parties' initiative (Aghion and Tirole (1994)), there is a negative and significant relation between targets' citations to acquirers' patents and block acquisitions in column one. Similarly, acquirers' citations to targets' patents are positive and significantly related to block acquisitions. On the one hand targets that build

[22] All results in the paper are robust to the use of 2 and 3-digit SIC codes fixed effects.

their innovation activity on acquirers' patents in the 15 years before the deal are more likely to be controlled. On the other, acquirers that rely on targets' innovation to move forward their own R&D are more likely to obtain a block. These results highlight the importance of parties' initiative. Furthermore, they are also economically significant. Moving from zero to one citation implies a 1.35% (1.08%) decrease (increase) in the probability of a block acquisition (the unconditional probability is 22%). This is at least a 5% change in the probability of a block acquisition. Looking at patents confirms these results in column two. Targets that have obtained patents in the 15 years before the deal are more likely to remain independent. A one standard deviation from the mean increases the probability of a block acquisition by 1%, a 4% increase with respect to the unconditional probability. As predicted by the theory acquirers' patents are negatively related to block acquisitions, yet this result is not significant. In columns five to eight I focus on deals where one of the parties has patents. While the effects are similar, the relation between acquirers' citations over patents' ratio and blocks is now significant. The result, however, is economically negligible. In this sense, it's surprising that patents' quality does not seem to be important in relation to blocks acquisitions. Nevertheless, these results must be interpreted with caution, as not all firms have patents and they only apply to a subset of firms within the sample. These results are not supported when using R&D over sales ratios as proxies for innovation activity. Targets' ratio of R&D over sales in the years before the deal is positive but not significantly related to block acquisitions (results not shown). However, it has been shown that this relation is not consistent across time. This is because patents occur at earlier stages in the R&D process while the bulk of the spending comes in the development phase (Griliches (1998)).

Finally, the table also shows results for targets and acquirers' firm characteristics the year before the deal. Larger, listed, less indebted and less profitable targets are more likely to

be part of a block acquisition. It seems that blocks do not ease targets' financial constraints. Blocks tend to be purchased by less indebted, more profitable and private firms.

b. Minority Investor Protection

In this section I study the importance of agency problems for block acquisitions, first at the country and then at the firm level. Figures 1 and 2 show the graph between the proportion of listed firms that have been targets of block acquisitions against countries' minority investor protection, as in Rossi and Volpin (2004). As can be readily seen, the figures show that the better the regulatory standards, the more firms are targets of blocks. I further explore this relation in Table 5, Panel A where I regress within and between country block activity over a number of controls, including variables that control for countries' economic development and growth rates, among others. The first five columns in Panel A (equivalent to Table 3 in Rossi and Volpin (2004)) show that volume, the proportion of listed firms that were target of a block acquisition is not related with any measure of minority investor protection. The same lack of results can be seen when looking at cross-country deals in columns six to ten (equivalent to Table 5 in Rossi and Volpin (2004)), or when using a Tobit specification instead of OLS in Table 5 Panel B. Nevertheless, the lack of results is probably related to the use of a small sample (16-15 observations).

A different story emerges when looking at firm-level measures of agency problems in a subset of listed firms. As Table 5 Panel C shows, targets' agency problems are negatively related to block acquisitions. Firms with agency problems are 8% less likely of being targets for blocks (the unconditional probability is 87%). To further understand this result, I split the dummy for agency problems. As the results in columns two to four show, the negative relation between blocks and agency problems is driven by the use of multiple class shares. Surprisingly, none of these proxies for agency problems is related to changes in the board in the years around the deal (results are in the Appendix 1), or with the size of the acquired

stake (Appendix 2), which could be the case if monitoring efforts are related to the size of the stake (Shleifer and Vishny (1986)).

c. Target's Financial Constraints

Table 2 shows that larger, listed, and less indebted targets are more likely to be part of a block acquisition. Hadlock and Pierce (2010) find that firm size proxies for firms being financially unconstrained. Therefore it seems unlikely that this type of deal is motivated by the easing of targets' financial constraints, as in Fee et al (2006) or Liao (2010). This is surprising given that most countries in the sample have a less developed financial system than that of the US (used in Fee et al (2006)), or are private firms, usually known for having more financial constraints than listed firms (the focus of Liao (2010)). Nevertheless, to strengthen the result from Table 3 I look at measures of financial development and industry's financial dependence.

Table 6 Panel A shows how the degree of countries' financial development and industries' financial dependence affects the probability of blocks' acquisitions. As can be seen in the Table, in every specification the coefficients on domestic credit and market capitalization are negative and significantly related to block acquisitions. Blocks seem to be more common in countries with lower financial development. Once looking at industries' financial dependence, the results again show that blocks are more common in industries with a high financial dependence, both measured through external dependence and investment intensity. However, the key ingredient to assure that blocks ease targets' financial constraints is that they are more common in less developed financial countries *and* industries with high financial dependence, i.e., the interaction between country and industry variables should be negative. However, as shown by the Panel, most interactions are not significant, and only a few are negative. I re-examine these results in Panels B and C, where I replicate these regressions but now splitting the sample in two dimensions: size (assets) and age (since year

of incorporation), as these variables proxy for financial constraints (Hadlock and Pierce (2010)). Panel B uses domestic credit over GDP as the measure of financial development, while Panel C uses market capitalization. Then in each Panel I divide the sample between old and young firms (columns 3, 4, 7, and 8), and between large and small firms (columns 1, 2, 5, and 6). Finally, columns 9 and 10 in each Panel show the triple interaction term, i.e., the interaction between country's financial development, industry's financial dependence and size and age. In both Panels interaction terms should be negative for small and young targets. The Panels show that this is actually not the case. Only when measuring country's financial development through market capitalization of listed firms the coefficients on the interaction term are negative and significant. The economic effect of this coefficient, although relatively large, must not be given much weight as only one specification out of four shows a result consistent with alleviating financial constraints. A one standard deviation in both financial development and investment intensity increases the probability of a block acquisition by 3.3%, a 16.9% increase from the unconditional probability. Consistent with the lack of robustness in these results, the triple interaction terms in columns nine and ten are not significant either.

Finally, I study share issuance in a subsample of listed firms from which I can get the number of shares available in DataStream. If a share issuance allows the arrival of a new blockholder, then blocks would relax targets' financial constraints. However, the evidence from this subsample in Appendix 3 indicates that share issuance is not more common in the year of the deal or those around it. This difference is neither significant between targets of blocks and other firms, nor between targets of blocks years before and after the deal. Summarizing, although there is evidence that blocks relax targets' financial constraints, this is far from being very robust and conclusive.

d. Acquirers' Financial Constraints/Targets' Managerial Incentives

In Table 7 I study these two contradicting hypotheses. Using the ratio between targets' assets and targets and acquirers' assets in column two, the results show that relatively larger targets are more likely to be part of a block acquisition. The coefficient of 0.17 in the second column shows that a one standard deviation in the relative size implies an increase of 5% in the probability of a block acquisition. This effect is economically significant, as it implies a 23% increase from the unconditional probability of a block acquisition. This would support the idea that acquirers might be financially constrained and prefer a block acquisition. However, larger acquirers are more likely to obtain blocks, contradicting this evidence. Splitting the sample between listed and private targets in columns three and four does not help to clarify this problem. Given that I split the sample the number of observations greatly differs between columns 3 and 4. In column five I focus again on listed targets, but following Ouimet (2013) I use firms' market capitalization instead of assets both for the relative size ratio and firms' controls. The regression, as expected, has now a bit more than 2,600 observations, as most targets are private firms. For private acquirers I use equity instead of market capitalization. The coefficient on relative size is positive yet not significant, and acquirers' equity is negatively though significantly related to block acquisitions. Finally, column six only considers deals among listed firms. As expected, the number of observations further drops. Unlike in Ouimet (2013) the coefficient on the relative size is still positive. The fact that the results so greatly differ with respect to those of Ouimet (2013) might be due to the small sample size or to the fact that executive compensation and ownership structure in Continental Europe differ from the traditional US firm (La Porta et al (1999), Conyon and Schwalbach (2000) and Enriques and Volpin (2007)).

e. Alternative Hypotheses

Ouimet (2013) also points out that blocks can be toeholds, i.e., first steps before a control acquisition as in Betton et al (2009). Out of 63,478 control acquisitions in the whole

Zephyr database (thus also considering those for which no accounting data is available), I know the initial stake for 61,572 (95%). Of these, 90% are acquisitions where 100% of targets' shares are purchased. From the remaining 6,087 deals, 3,433 had no initial stake and 2,654 had an initial stake. Therefore, a very small proportion of control acquisitions were preceded by a toehold (4.3%). The average initial stake is 37.9% in private targets, and 9.6% in listed ones. The fact that initial stakes are so large is consistent with the evidence in Betton et al (2009) for US toeholds. Finally, I also look at the valuation effects of blocks' acquisitions using an event study in Appendix 4. Unfortunately, not much can be said about their valuation effects as the results are similar to those previously obtained by Allen and Phillips (2002) in their sample of US blocks' acquisitions. There is a 1-2% target abnormal return around the deal, and this is mainly explained by targets that have patents and citations. There are no effects on acquirers.

5. What Happens After the Deal Takes Place?

In the last section of the paper I study blocks' determinants by studying acquirers and targets' behaviour after the deal. Using each acquirer/targets' unique Bureau van Dijk identifier I map Zephyr's firms into Amadeus (i.e., those acquirers and targets from Table 4), obtaining firm-level data for a period of seven years: the year before the deal, the year the deal takes place and five subsequent years. The database has information for almost 8,000 targets and 7,000 acquirers' firm-year observations. Finally, by focusing on targets and acquirers separately the number of observations in each Table differs. The number of observations varies between specifications as Amadeus coverage is not homogenous throughout time or variables.

I follow a specification that allows me to observe changes in dependent variables after the deal as compared to before the deal, while controlling for firms' characteristics before the

deal (a similar approach to Pagano, Panetta and Zingales (1998) and Kim and Weisbach (2008)). The regression is:

$$y_{i,t+j} = Block_{i,t} + Firm\ Controls_{i,t-1} + \mu_t + \pi_j + \omega_c + \varepsilon_{i,t}$$

Where $y_{i,t}$ is firm's *i* outcome of interest for years *t+j*. By considering *j=1, 3, 5,* I am able to study the differences between block and control acquisitions in a relatively large horizon. $Block_{i,,t}$ is a dummy that takes the value of one for all blocks (and zero for all control acquisitions). Firm controls in *t-1* include firm size (in log), leverage, profitability (ROA) and age (in log). It is important to note that the present analysis is not a panel data and thus I do not control for firm fixed characteristics. I try to circumvent this problem by controlling for a variety of dimensions by using year (μ_t), industry (π_j) (at the 1-digit SIC code) and country (ω_c) fixed effects. All variables are winsorized at the 1% level. Standard errors are robust and clustered at the firm level. Finally, and again following Kim and Weisbach (2008), for the construction of $y_{i,t}$ I define stock variables:

$$y_{i,t+j}^{stock} = ln\left[\frac{v_{i,t+j} - v_{i,t}}{v_{i,t}} + 1\right]$$

Where assets, patents and citations are stock variables and *j=1, 3, 5*. While there is a decrease in observations from *j=1* to *j=3*, this is particularly noticeable when *j=5*. The reason underlying this drop is that most deals take place after 2006, and so there is no data within my sample to perform the analysis. Patents and citations are the number of patents and citations in the last 15 years, as previous results in Table 4 (Belenzon (2012) and Ouimet (2013)). Other variables such as leverage, intangible and tangible fixed assets over total assets (where tangible investments also consider depreciation as in Erel et al (2012)), cash holdings over total assets and citations over patents are ratios, and so are averaged over the corresponding period (*j=1,3,5*) and defined as:

$$y_{i,t+j}^{ratio} = \frac{1}{j} \times \sum_{k=1}^{k=j} v_{i,t+j}$$

Table 8, Panel A, looks at targets after the deal takes place. The first three columns look at intangible fixed assets one, three, and five years after the deal. The coefficient on blocks' dummy is always positive and significant. The 4-5% increase in intangible fixed assets after the deal is large compared to the 5% average the year before the deal. It is important to note that intangible investments are, according to IFRS IAS38: "identifiable non-monetary asset without physical substance... ", including, for example, patents, computer software, advertising, etc. This result is confirmed in columns four to twelve, which show a significant increase in patents, citations and patents quality for targets of blocks one to five years after the deal. These results are consistent with previous evidence on the effect of becoming part of a conglomerate on innovation. Seru (2010) shows that firms that become part of a conglomerate suffer a drop in innovation activity (patents and citations) of about 60% when compared to firms that remained independent. Panel B shows that targets of blocks acquisitions have more assets (columns one to three), less leverage (columns four to six) and also more tangible investments (columns seven to nine) after the deal. Erel et al (2013) find that targets' investments increase after being part of a control acquisition, and that this is consistent with financial constraints being relieved. Yet they note that for financial constraints to be eased, cash holdings should decrease. As the results show, cash holdings do not decrease, which raises further doubts on whether blocks ease targets' financial constraints.

Finally, I replicate these regressions in acquirers of blocks in Table 9, Panels A and B. Panel A shows a decrease in intangible fixed assets, patents, citations, and patents' quality. Compared to firms that acquire targets' control, acquirers of blocks reduce their assets, tangible investments and leverage. If acquirers are financially constrained and thus are only

able to acquire a block, it is far from obvious whether or not their financial constraints are eased after the deal. Therefore, no inference can be made that supports or discredits this hypothesis.

6. Conclusion

Firms can acquire blocks for a variety of reasons. In this paper I study blocks' determinants using a comprehensive sample of deals that involve Western European targets, covering almost 30,000 deals over the years 1997-2013.

Using control acquisitions as a counterfactual I find that blocks ease contractual incompleteness problems, as previously shown in the literature (Pisano (1989), Allen and Phillips (2002), Fee et al (2006) and Ouimet (2013)). Yet more interestingly, I find that blocks support the predictions from the property rights' theory (Aghion and Tirole (1994)). This is crucial given how little empirical support there is for this theory. I also find that agency problems play a role. Targets' agency problems prevent blocks from taking place. Although the previous evidence shows that blocks alleviate targets' financial constraints, the evidence from this sample of deals in private and listed targets in Western Europe does not support this prediction very strongly. This is surprising given that private firms tend to be more financially constrained than listed ones, and because most countries in the sample are less financially developed than the US.

Table 1: Theories' Empirical Predictions

Theory	Before the Deal (Effect on the Probability of a Block Acquisition)		After the Deal	
Transaction Cost Economics	Targets Patents/Citations/Patent Quality	+	Targets' Investments	+
	Acquirers Patents/Citations/Patent Quality	+	Acquirers' Invesments	+
Property Rights Theory	Targets' Citations to Acquirers Patents	-	Targets of Blocks Investments in Intangible Fixed Assets	+
	Targets' Patents/Citations/Patent Quality	+	Targets' of Blocks Patents/Citations/Patent Quality	+
	Acquirers' Citations to Targets' Patents	+	Targets of Control Investments in Intangible Fixed Assets	-
	Acquirers' Patents/Citations/Patent Quality	-	Targets' of Control Patents/Citations/Patent Quality	-
Agency Problems	Targets Country Minority Investor Protection	+		
	Targets with Multiple Class Shares	-		
Targets' Financial Constraints	Target Size	-	Targets of Blocks Investments and Assets	+
	Listed Status	-	Targets of Blocks Cash Holdings	-
	Targets' Country Financial Development	-		
	Targets' Industry Financial Dependence	-		
Acquirers Financial Constraints	Target Size	+		
	Listed Status	-		
Targets' Managerial Hypothesis	Target Size	-		
	Listed Status	+		

Table 2: Summary Statistics

The panel presents statistics for blocks and control acquisitions. Blocks are defined as deals where the acquirer ends with less than 20% (50%) of the shares in listed (private) targets. Control is defined as the acquirer obtaining more than 50% of shares in private targets, and, in listed targets, acquiring 10% of the shares or more, and increasing his stake from less than 20% before the acquisition, to more than 20% after the acquisition (Dyck and Zingales (2004)). Panel A shows the number of deals, average deal value (in million €), initial, acquired and final stakes, and dummy variables that take the value of one if the deal was paid in cash or shares. Panel B shows targets and acquirers characteristics before the deal. These include assets (in log); leverage, defined as debt over assets; returns over assets (ROA), defined as EBITDA (EBIT) over total assets; and a listed status dummy ,that takes the value of 1 for all listed acquirers. Panel C shows the number of citations from targets' patents to acquirers' patents in the last 15 yearsand vice versa; the number of patents firms hold in the last 15 years before the deal (in log); the number of citations per patent in the last 15 years. The panel also shows firms' financial conditions. At the country level and with data from World Bank: domestic credit, defined as the ratio of private credit by deposit money bank and other financial institutions to GDP, and market capitalization of listed companies over GDP. Industries' financial dependence using Compustat data between 1997 and 2013 at the three-digit SIC level: external dependence, the ratio between capital expenditures net of cash flows from operations and capital expenditures; trade credit, the ratio between accounts payable and total assets, and finally, investment intensity, or capital expenditures over total assets. Data is from Zephyr, Patstat, World Bank and Compustat.

Panel A: Deal Characteristics

	Blocks			Control					
	All (a)	Listed	Private	All (b)	Listed	Private	T-test (a)-(b)	Mean	S.D.
Number	6.421	2.323	4.098	22.654	344	22.310			
Deal Value (million €)	55	47	62	225	685	200	5,52***	144	1.568
Initial Stake (%)	5,47	4,46	6,04	1,95	1,82	1,95	-3,27***	2,73	8,88
Acquired Stake (%)	11	3	15	95	74	96	410,85***	76,59	37,99
Final Stake (%)	16,15	7,25	21,19	97,22	75,65	97,55	506,74***	79	35
Cash	0,42	0,48	0,39	0,09	0,37	0,08	-69,13***	0,16	0,37
Shares	0,01	0,00	0,01	0,03	0,22	0,03	11,85**	0,03	0,16

Panel B: Firm Characteristics

	Blocks			Control					
	All (a)	Listed	Private	All (b)	Listed	Private	T-test (a)-(b)	Mean	S.D.
Target's Assets (million €)	4.669	8.513	2.490	260	1.571	239	-23,963***	1.233	13.100
Target's Leverage	0,51	0,48	0,53	0,68	0,45	0,68	24,62***	0,64	0,47
Target's ROA	0,01	0,02	0,00	0,04	- 0,04	0,04	7,46***	0,04	0,30
Target's Age	31,37	41,38	25,69	18,81	30,43	18,63	-37,02***	21,59	24,54
Acquirer's Assets (million €)	67.200	114.000	40.500	2.849	6.445	2.793	-35,14***	17.100	132.000
Acquirer's Leverage	0,48	0,49	0,47	0,55	0,43	0,55	17,92***	0,53	0,29
Acquirer's ROA	0,09	0,12	0,06	0,06	0,02	0,06	-9,43***	0,07	0,18
Listed Acquirers	0,17	0,27	0,12	0,14	0,47	0,13	-7,39**	0,15	0,35

Panel C: Patents, Financial Dependence and Agency Problems

	Blocks	Control	T-test	Mean	S.D.
Number of citations from Acquirer to Target	0,11	0,01	-4,14***	0,03	1,78
Number of citations from Target to Acquirer	0,08	0,02	-2,94***	0,03	1,50

	Targets					Acquirers				
	Blocks	**Control**	**T-test**	Mean	S.D.	**Blocks**	**Control**	**T-test**	Mean	S.D.
Patents (log)	0,60	0,10	-41,25***	0,21	0,87	0,27	0,36	5,02***	0,34	1,20
Citation to Patents Ratio	0,84	0,18	-29,87***	0,33	1,57	0,45	0,54	2,76***	0,52	2,21
Domestic Credit	1,37	1,33	-5,45***	1,34	0,44	1,37	1,34	-4,99***	1,34	0,44
Market Cap over GDP	0,85	0,83	-3,74**	0,84	0,35	0,87	0,85	-3,85***	0,85	0,36
Trade Credit	0,43	0,67	4,03***	0,61	3,79	0,31	0,76	4,74***	0,66	6,15
External Funds Dependence	5,33	6,79	0,74	6,46	127,76	-43,89	1,65	22,83***	-8,67	131,44
Investment Intensity	0,05	0,04	-5,15***	0,05	0,06	0,02	0,04	13,28***	0,04	0,10

Table 3: Correlation Matrix

The panel presents correlations among the main variables used. Blocks are defined as deals where the acquirer ends with less than 20% (50%) of the shares in listed (private) targets. The table shows targets and acquirers characteristics before the deal: assets (in log); leverage, defined as debt over assets; returns over assets (ROA), defined as EBITDA (EBIT) over total assets; and a listed status dummy ,that takes the value of 1 for all listed firms. It also shows the number of citations from targets' patents to acquirers' patents in the last 15 years and vice versa; the number of patents firms hold in the last 15 years before the deal (in log); the number of citations per patent in the last 15 years. Finally, it also shows firms' financial conditions: domestic credit, defined as the ratio of private credit by deposit money bank and other financial institutions to GDP, and market capitalization of listed companies over GDP, external dependence, the ratio between capital expenditures net of cash flows from operations and capital expenditures; trade credit, the ratio between accounts payable and total assets, and finally, and investment intensity, or capital expenditures over total assets. Data is from Zephyr, Patstat, World Bank and Compustat.

Correlation Matrix

			Target						Acquirer			
		Block	Assets (million €)	Leverage	ROA	Age	Listed (%)		Assets (million €)	Leverage	ROA	Listed (%)
Targets	Assets (million €)	0,14***										
	Leverage	-0,14***	0,02***									
	ROA	-0,04***	-0,00	-0,41***								
	Age	0,21***	0,14***	-0,08***	0,04***							
	Listed (%)	0,49***	0,15***	-0,11***	-0,02***	0,24***						
Acquirers	Assets (million €)	0,20***	0,15***	-0,02***	-0,00	0,09***	0,20***					
	Leverage	-0,10***	0,03***	0,11***	0,00	-0,02***	-0,05***		0,15***			
	ROA	0,06***	-0,00	-0,06***	0,13***	0,04***	0,08***	-0,04***	-0,09***			
	Listed (%)	0,04***	0,04***	-0,00	0,00	0,04***	0,13***	0,14***	-0,08***	-0,07***		
	Citations from Acquirer to Target	0,02***	0,04***	0,00	-0,00	0,06***	-0,00	-0,00	-0,00	0,00	0,02***	
	Citations from Target to Acquirer	0,02***	0,04***	0,00	-0,00	0,05***	-0,00	-0,00	-0,00	0,00	0,03***	0,87***
	Acquirers' Patents (log)	-0,03***	0,00	-0,00	0,00	0,02***	-0,02***	0,04***	-0,02***	-0,00	0,21***	0,11***
	Targets' Patents (log)	0,24***	0,11***	-0,04***	-0,03***	0,27***	0,26***	0,11***	-0,04***	0,02***	0,09***	0,14***
	Acquirers' Citation to Patents Ratio	-0,02***	0,01	-0,01	-0,01**	0,00	-0,00	0,00	-0,03**	-0,01**	0,16***	0,04***
	Targets' Citation to Patents Ratio	0,17***	0,08***	-0,03***	-0,05***	0,17***	0,18***	0,08***	-0,02***	0	0,07***	0,07***
Targets	Domestic Credit	0,04***	0,02***	0,07***	-0,07***	0,00	0,17***	0,05***	0,06***	-0,03***	0,11***	-0,01
	Market Cap over GDP	0,02***	-0,03***	-0,01	-0,02***	-0,01*	0,03***	0,01**	-0,03***	-0,00	-0,03***	-0,01**
	Trade Credit	-0,03***	-0,00	0,00	-0,01	-0,02***	-0,02***	-0,01	-0,01	-0,00	-0,01	0,00
	External Funds Dependence	-0,00	-0,01*	0,01	-0,01	-0,00	0,00	-0,02**	-0,01*	0,00	0,02***	0,00
	Investment Intensity	0,03***	-0,02***	-0,00	-0,00	0,00	0,01*	0,02**	0,00	0,01	-0,00	0,00
Acquirers	Domestic Credit	0,03***	-0,01	0,07***	-0,07***	0,00	0,16***	-0,04***	0,06***	0,00	0,07***	-0,01
	Market Cap over GDP	0,02***	-0,03***	-0,01**	-0,01	-0,01*	0,02***	-0,08***	-0,04***	0,03***	-0,01*	-0,01**
	Trade Credit	-0,03***	-0,00	0,00	-0,00	-0,01***	-0,02***	0,00	-0,00	-0,01*	-0,00	0,00
	External Funds Dependence	-0,14***	-0,02***	0,03***	0,00	-0,04***	-0,10***	-0,00	0,04***	-0,01***	0,01*	0,00
	Investment Intensity	-0,08***	-0,02***	0,01**	0,00	-0,01**	-0,07***	-0,04***	-0,00	0,00	-0,00	0,00

*** p<0.01, ** p<0.05, * p<0.1

Correlation Matrix (continued)

							Target					Acquirer			
		Citations from Target to Acquirer	Acquirers' Patents (log)	Targets' Patents (log)	Acquirers' Citation to Patents Ratio	Targets' Citation to Patents Ratio	Domestic Credit	Market Cap over GDP	Trade Credit	External Funds Dependence	Investment Intensity	Domestic Credit	Market Cap over GDP	Trade Credit	External Funds Dependence
	Acquirers' Patents (log)	0,13***													
	Targets' Patents (log)	0,16***	0,15***												
Acquirers	Citation to Patents Ratio	0,05***	0,60***	0,10***											
Targets	Citation to Patents Ratio	0,08***	0,13***	0,69***	0,12***										
Targets	Domestic Credit	-0,01	-0,03***	-0,03***	-0,04	-0,02***									
	Market Cap over GDP	-0,01	-0,04***	-0,03***	0,00	0,01	0,27***								
	Trade Credit	0,00	-0,01	-0,01**	-0,00	-0,01*	-0,02**	-0,00							
	External Funds Dependence	0,01	0,03***	0,05***	0,03***	0,06***	-0,04***	0,01**	0,01**						
	Investment Intensity	0,00	0,00	0,01	0,00	-0,00	-0,02	0,00	-0,02***	-0,00					
Acquirers	Domestic Credit	-0,01	-0,07***	-0,02**	-0,02***	-0,01*	0,84***	0,19***	-0,02**	-0,04***	-0,02***				
	Market Cap over GDP	-0,01*	-0,05***	-0,00	0,01**	0,02***	0,17***	0,77***	-0,01	0,02**	0,00	0,28***			
	Trade Credit	0,00	-0,00	-0,01*	-0,00	-0,00	-0,01**	-0,00	0,43***	0,00	-0,00	-0,01***	-0,00		
	External Funds Dependence	0,00	0,05***	-0,02***	0,04***	-0,01	-0,04***	0,00	0,01**	0,39***	-0,00	-0,06***	0,00	0,01**	
	Investment Intensity	0,00	0,04***	-0,01**	0,01***	-0,01**	-0,03***	-0,00	-0,00	-0,00	0,42***	-0,03***	-0,00	-0,00	0,02***

*** p<0.01, ** p<0.05, * p<0.1

Table 4: Blocks and Contractual Incompleteness' Problems

The table presents marginal effects of probit regressions for blocks and control acquisitions, where blocks take the value of one (1) and control acquisitions the value of zero (0). Controls include the number of citations from targets' patents to acquirers' patents in the 15 years before the deal and vice versa; the number of patents firms hold in the last 15 years before the deal (in log); the number of citations per patent in the last 15 years. Also targets and acquirers characteristics before the deal: assets (in log); leverage, defined as debt over assets; returns over assets (ROA), defined as EBITDA (EBIT) over total assets; and a listed status dummy, that takes the value of 1 for all listed firms. Controls (not shown) include the initial stake the acquirer had in the target (if any), dummy variables for payment in cash or shares; target and acquirers' country, and industry (1-digit SIC code) fixed effects, as well as year fixed effects. Columns five to eight focus on deals where one or both parties have patents. Data is from Zephyr and Patstat. All variables are winsorized at the 1%.

	Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Targets'	Citations to Acquirer	-0.01***			-0.01***	-0.01***			-0.01***
		(0.00)			(0.00)	(0.00)			(0.00)
	Patents (in log)		0.01***		0.01***		0.01**		0.01**
			(0.00)		(0.00)		(0.00)		(0.00)
	Citations to Patents			0.00**	-0.00			0.00	-0.00
				(0.00)	(0.00)			(0.00)	(0.00)
Acquirers'	Citations to Target	0.01***			0.01***	0.01***			0.01***
		(0.00)			(0.00)	(0.00)			(0.00)
	Patents (in log)		-0.00		-0.00		-0.01***		-0.00
			(0.00)		(0.00)		(0.00)		(0.00)
	Citations to Patents			-0.00*	-0.00			-0.00***	-0.00**
				(0.00)	(0.00)			(0.00)	(0.00)
Targets'	Assets (in log)	0.02***	0.02***	0.02***	0.02***	0.02***	0.02***	0.02***	0.02***
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
	Leverage	-0.05***	-0.05***	-0.05***	-0.05***	-0.04***	-0.04***	-0.04***	-0.04***
		(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
	ROA	-0.08***	-0.08***	-0.08***	-0.08***	-0.08***	-0.07***	-0.08***	-0.07***
		(0.01)	(0.01)	(0.01)	(0.01)	(0.02)	(0.02)	(0.02)	(0.02)
	Age	-0.00***	-0.00***	-0.00***	-0.00***	0.00	0.00	0.00	-0.00
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
	Listed Dummy	0.16***	0.16***	0.16***	0.16***	0.17***	0.17***	0.17***	0.16***
		(0.01)	(0.01)	(0.01)	(0.01)	(0.02)	(0.02)	(0.02)	(0.02)
Acquirers'	Assets (in log)	0.00	0.00	0.00	0.00	0.00	0.01***	0.00**	0.01***
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
	Leverage	-0.05***	-0.05***	-0.05***	-0.05***	-0.08***	-0.08***	-0.09***	-0.08***
		(0.01)	(0.01)	(0.01)	(0.01)	(0.02)	(0.02)	(0.02)	(0.02)
	ROA	0.04***	0.04***	0.04***	0.04***	0.08***	0.09***	0.09***	0.08***
		(0.01)	(0.01)	(0.01)	(0.01)	(0.03)	(0.03)	(0.03)	(0.03)
	Listed Dummy	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
	Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations		29,075	29,075	29,075	29,075	4,712	4,712	4,712	4,712

Robust and clustered (by acquirer) standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 5: Blocks and Agency Problems

Panel A presents OLS regressions for within country block acquisitions. Dependent variable is volume, the proportion of listed firms that were target of a block acquisition. Independent variables are GNP per capita (log); GDP growth, measured as the average growth between 1997-2013; Common Law a dummy that takes the value of one for common law countries and zero otherwise; accounting standards, an index of the quality of accounting disclosure (La Porta et al (1999)); minority investor protection, defined as a measure of protection towards shareholders from abuses by the controlling shareholder (Djankov et al (2008)); and ownership concentration, the average equity stake owned by the three largest shareholders (La Porta et al (1999). Panel B shows the same regressions but now with Tobit instead of OLS. Data is from Zephyr, La Porta et al (1999), Djankov et al (2008), and World Bank.

Panel A: OLS Regressions on Block Acquisitions

	Within Countries					Between Countries				
Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Log (GNP per Capita)	-0.01	-0.03	-0.01	-0.02	-0.04	-18.85	-39.38*	-19.03	-26.36*	-28.14**
	(0.04)	(0.04)	(0.03)	(0.04)	(0.04)	(12.14)	(21.22)	(11.75)	(12.95)	(12.48)
GDP Growth	0.00	-0.00	0.00	-0.00	-0.01	4.62	2.74	4.81	2.56	1.42
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(4.25)	(5.70)	(3.33)	(3.75)	(4.19)
Common Law	0.00					28.49				
	(0.02)					(32.37)				
Accounting Standards		0.00		0.00	-0.00		1.38		0.77	0.60
		(0.00)		(0.00)	(0.00)		(0.78)		(0.47)	(0.67)
Minority Investor Protection			0.03	0.03	-0.03			61.53	80.09***	71.39*
			(0.03)	(0.06)	(0.06)			(39.70)	(21.09)	(35.32)
Ownership Concentration					-0.26					-36.19
					(0.15)					(97.93)
R-squared	0.01	0.05	0.04	0.07	0.32	0.24	0.31	0.35	0.62	0.63
Observations	16	15	16	15	15	16	15	16	15	15

Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Panel B: Tobit Regressions on Block Acquisitions

	Within Countries					Between Countries				
Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Log (GNP per Capita)	-0.01	-0.03	-0.01	-0.02	-0.04	-18.85	-39.38*	-19.03*	-26.36**	-28.14**
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(10.86)	(18.81)	(10.51)	(10.94)	(10.01)
GDP Growth	0.00	-0.00	0.00	-0.00	-0.01	4.62	2.74	4.81	2.56	1.42
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(3.80)	(5.05)	(2.98)	(3.17)	(3.36)
Common Law	0.00					28.49				
	(0.02)					(28.95)				
Accounting Standards		0.00		0.00	-0.00		1.38*		0.77*	0.60
		(0.00)		(0.00)	(0.00)		(0.69)		(0.40)	(0.54)
Minority Investor Protection			0.03	0.03	-0.03			61.53	80.09***	71.39**
			(0.03)	(0.05)	(0.05)			(35.51)	(17.82)	(28.32)
Ownership Concentration					-0.26*					-36.19
					(0.12)					(78.52)
Observations	16	15	16	15	15	16	15	16	15	15

Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 5: Blocks and Agency Problems (continued)

Panel C presents marginal effects of probit regressions for blocks and control acquisitions, where blocks take the value of one (1) and control acquisitions the value of zero (0). Independent variables include free-float, the proportion of shares available to ordinary investors; agency problems, a dummy that takes the value of one for all firms that have a divergence between voting and cash flow rights; multiple voting shares, a dummy that takes the value of one for all firms with multiple voting shares; and dual-class shares, a dummy that takes the value of one for all firms with dual- class shares. Other control (not shown) include targets and acquirers characteristics before the deal: assets (in log); leverage, defined as debt over assets; returns over assets (ROA), defined as EBITDA (EBIT) over total assets; and a listed status dummy, that takes the value of 1 for all listed firms; the initial stake the acquirer had in the target (if any); dummy variables for payment in cash or shares; target and acquirers' country, and industry (1-digit SIC code) fixed effects, as well as year fixed effects. Data is from Zephyr and DataStream. All variables are winsorized at the 1%.

Variables	(1)	(2)	(3)	(4)
Free-Float	0.00***	0.00***	0.00***	0.00***
	(0.00)	(0.00)	(0.00)	(0.00)
Agency Problems		-0.08**		
		(0.04)		
Multiple Voting Shares			-0.05	
			(0.05)	
Dual-Class Shares				-0.12***
				(0.04)
Controls	Yes	Yes	Yes	Yes
Observations	2,707	2,707	2,707	2,707

Robust and clustered (by acquirer) standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 6: Blocks and Financial Constraints

The table presents marginal effects of probit regressions for blocks and control acquisitions, where blocks take the value of one (1) and control acquisitions the value of zero (0). Controls include firms' financial conditions. At the country level and with data from World Bank: domestic credit, defined as the ratio of private credit by deposit money bank and other financial institutions to GDP, and market capitalization of listed companies over GDP. Industries' financial dependence using Compustat data between 1997 and 2013 at the three-digit SIC level: external dependence, the ratio between capital expenditures net of cash flows from operations and capital expenditures; trade credit, the ratio between accounts payable and total assets, and finally, investment intensity, or capital expenditures over total assets. Controls (not shown) also include firms' characteristics before the deal both for targets and acquirers (assets, leverage, profitability and listed status); the initial stake the acquirer had in the target (if any), dummy variables for payment in cash or shares; target and acquirers' country, and industry (1-digit SIC code) fixed effects, as well as year fixed effects. In Panel A I show the effects of country and industry financial conditions on the whole sample: columns one to seven have domestic credit as the variable for country's financial development; columns eight to fourteen have market capitalization of listed firms as the variable for country's financial development. Panels B and C split the sample along two dimensions, size (assets) and age (since year of incorporation), while replicating the regressions from Panel A. However, Panels B and C focus only in regressions with investment intensity as a measure of industries' financial dependence. Data is from Zephyr, World Bank and Compustat. All variables are winsorized at the 1%.

Panel A: Financial Constraints

	Domestic Credit							Market Capitalization						
Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Financial Development	-0.02**	-0.02**	-0.02*	-0.02**	-0.02**	-0.02**	-0.02**	-0.02*	-0.02*	-0.02*	-0.02*	-0.02*	-0.02*	0.00
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Trade Credit		-0.00	0.00**						-0.00	-0.00				
		(0.00)	(0.00)						(0.00)	(0.00)				
Financial Development x Trade			-0.00**							-0.00				
Credit			(0.00)							(0.00)				
External dependence				0.00***	0.00						0.00***	0.00***		
				(0.00)	(0.00)						(0.00)	(0.00)		
Financial Development x External					-0.00							-0.00		
Dependence					(0.00)							(0.00)		
Investment Intensity						0.06**	0.00						0.07**	0.58***
						(0.03)	(0.05)						(0.03)	(0.13)
Financial Development x							0.07							-0.51***
Investment Intensity							(0.06)							(0.13)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	24,093	20,156	20,156	20,064	20,064	20,156	20,156	25,393	21,224	21,224	21,132	21,132	21,224	21,224

Robust and clustered (by acquirer) standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Panel B: Financial Constraints among Small and Young Firms

	Domestic Credit									
	Large		Old		Small		Young		Full Sample	
Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Financial Development	-0.02	-0.01	-0.00	-0.00	-0.02	-0.03**	-0.04***	-0.03**	-0.02*	-0.02**
	(0.01)	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)	(0.01)	(0.01)
Investment Intensity	0.16*	0.54**	0.04**	0.01	0.03*	-0.13***	0.17	0.38	0.14*	-0.01
	(0.08)	(0.24)	(0.02)	(0.04)	(0.02)	(0.05)	(0.12)	(0.27)	(0.08)	(0.07)
Financial Development x Investment Intensity		-0.25**		0.04		0.24***		-0.16	-0.46**	0.07
		(0.13)		(0.05)		(0.08)		(0.20)	(0.22)	(0.06)
Financial Development x Investment Intensity x Target's Assets									0.04**	
									(0.02)	
Financial Development x Investment Intensity x Target's Age										0.00
										(0.00)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	10,155	10,155	9,782	9,782	10,113	10,113	10,287	10,287	20,376	20,156

Robust and clustered (by acquirer) standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Panel C: Financial Constraints among Small and Young Firms

	Market Capitalization									
	Large		Old		Small		Young		Full Sample	
Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Financial Development	-0.01	0.02	-0.01	0.01	-0.02*	-0.01	-0.03**	-0.00	-0.00	0.00
	(0.02)	(0.02)	(0.01)	(0.02)	(0.01)	(0.02)	(0.01)	(0.02)	(0.01)	(0.01)
Investment Intensity	0.18**	0.80***	0.05**	0.44***	0.03*	0.21	0.18	0.87***	0.54***	0.59***
	(0.09)	(0.20)	(0.02)	(0.17)	(0.02)	(0.21)	(0.12)	(0.20)	(0.16)	(0.14)
Financial Development x Investment Intensity		-0.65***		-0.40**		-0.18		-0.65***	-0.91***	-0.47***
		(0.17)		(0.17)		(0.20)		(0.19)	(0.30)	(0.13)
Financial Development x Investment Intensity x Target's Assets									0.05*	
									(0.03)	
Financial Development x Investment Intensity x Target's Age										-0.00
										(0.00)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	10,674	10,674	10,197	10,197	10,671	10,671	10,940	10,940	21,453	21,224

Robust and clustered (by acquirer) standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 7: Acquirers' Financial Constraints

The table presents marginal effects of probit regressions for blocks and control acquisitions, where blocks take the value of one (1) and control acquisitions the value of zero (0). Controls include different measures of relative size, the ratio between targets' assets (market capitalization) over targets and acquirers' assets (market capitalization) (Ouimet (2013)). Controls also include targets and acquirers characteristics before the deal: assets (in log); leverage, defined as debt over assets; returns over assets (ROA), defined as EBITDA (EBIT) over total assets; and a listed status dummy, that takes the value of 1 for all listed firms. Finally, controls also include the initial stake the acquirer had in the target (if any), dummy variables for payment in cash or shares; target and acquirers' country, and industry (1-digit SIC code) fixed effects, as well as year fixed effects. Data is from Zephyr. All variables are winsorized at the 1%.

		All Firms		Listed Targets	Private Targets	Listed Targets	Only Listed
Variables		(1)	(2)	(3)	(4)	(5)	(6)
Relative Size	Targets' Assets over Targets and Acquirers' Assets		0.17***	0.15***	0.16***		
			(0.01)	(0.03)	(0.01)		
	Targets' Market Cap over Targets' Market Cap and Acquirers' Market Cap or Equity					0.03	
						(0.02)	
	Targets' Market Cap over Targets' Market Cap and Acquirers' Market Cap						0.02
							(0.08)
Targets'	Assets (in log)	0.02***	0.01***	0.01*	0.01***		
		(0.00)	(0.00)	(0.00)	(0.00)		
	Market Capitalization (in log)					0.02***	0.01
						(0.00)	(0.01)
	Listed Dummy	0.16***	0.15***				
		(0.01)	(0.01)				
Acquirers'	Assets (in log)	0.00	0.02***	0.01***	0.02***		
		(0.00)	(0.00)	(0.00)	(0.00)		
	Market Capitalization or Equity (in log)					-0.00***	
						(0.00)	
	Market Capitalization (in log)						0.01
							(0.01)
	Listed Dummy	0.00	0.00	-0.01	0.01	-0.03*	
		(0.01)	(0.01)	(0.01)	(0.01)	(0.02)	
Controls		Yes	Yes	Yes	Yes	Yes	Yes
	Observations	29,075	29,075	2,644	26,401	2,644	663

Robust and clustered (by acquirer) standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 8: Blocks' Effects on Targets

The panel presents OLS regressions for firms characteristics on a dummy that takes the value of one (1) for all blocks, and zero otherwise, and a set of controls. Panel A shows regressions were dependent variables are intangible fixed assets, patents, citations and the citations over patents ratio. Panel B shows regressions where dependent variables are asset growth, leverage, tangible fixed assets and cash holdings. For the dependent variables I follow Kim and Weisbach (2008) as specified in the main text. Controls also include targets and acquirers characteristics before the deal: assets (in log); leverage, defined as debt over assets; returns over assets (ROA), defined as EBITDA (EBIT) over total assets; and firm age (in log). Controls also include country, industry (1-digit SIC) and year fixed effects. All variables are winsorized at the 1%. Data is from Zephyr, Patstat and Amadeus.

Panel A: Targets and Contractual Incompleteness (Cross-Section)

	Intangible Fixed Assets			Patents			Citations			Citations over Patents Ratio		
Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	t+1	t+3	t+5	t+1	t+3	t+5	t+1	t+3	t+5	t+1	t+3	t+5
Block	0.053***	0.047***	0.045***	0.010**	0.021**	0.024*	0.007	0.022**	0.018	0.399***	0.418***	0.280***
	(0.004)	(0.005)	(0.006)	(0.005)	(0.008)	(0.014)	(0.005)	(0.008)	(0.013)	(0.057)	(0.071)	(0.077)
Assets (log)	0.004***	0.004***	0.005***	0.002***	0.003***	0.003*	0.001**	0.000	0.001	0.069***	0.077***	0.071***
	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)	(0.002)	(0.007)	(0.010)	(0.010)
Leverage	0.002	0.007	0.013	-0.013***	-0.028***	-0.039***	-0.017***	-0.032***	-0.026	-0.358***	-0.423***	-0.222*
	(0.006)	(0.007)	(0.010)	(0.004)	(0.009)	(0.015)	(0.006)	(0.012)	(0.017)	(0.074)	(0.107)	(0.128)
ROA	-0.039***	-0.026**	-0.043**	-0.031***	-0.050**	-0.047	-0.040***	-0.059**	-0.045	-0.703***	-0.752***	-0.527**
	(0.010)	(0.012)	(0.017)	(0.009)	(0.023)	(0.037)	(0.012)	(0.024)	(0.033)	(0.129)	(0.204)	(0.266)
Age (log)	-0.009***	-0.007***	-0.006***	-0.004**	-0.011***	-0.013**	-0.003*	-0.010**	-0.019***	-0.044	-0.031	-0.033
	(0.001)	(0.002)	(0.002)	(0.001)	(0.003)	(0.006)	(0.002)	(0.004)	(0.007)	(0.027)	(0.039)	(0.054)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	6,788	4,437	2,708	8,182	5,015	2,813	8,182	5,015	2,813	8,182	5,015	2,813
R-squared	0.080	0.087	0.088	0.014	0.013	0.012	0.011	0.009	0.008	0.059	0.054	0.046

Robust and clustered (by firm) standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Panel B: Targets and Financial Constraints (Cross-Section)

	Asset Growth			Leverage			Tangible Fixed Assets			Cash Holdings Ratio		
Variables	(1)	(2)	(3)	(4)	(5)	(6)	(4)	(5)	(6)	(7)	(8)	(9)
	t+1	t+3	t+5	t+1	t+3	t+5	t+1	t+3	t+5	t+1	t+3	t+5
Block	0.030***	0.044***	0.057***	-0.066***	-0.060***	-0.056***	0.072***	0.071***	0.059***	0.013***	0.008	0.010
	(0.002)	(0.003)	(0.005)	(0.010)	(0.010)	(0.012)	(0.008)	(0.010)	(0.012)	(0.005)	(0.005)	(0.006)
Assets (log)	-0.005***	-0.007***	-0.009***	-0.001	-0.002**	-0.003***	0.010***	0.010***	0.008***	-0.005***	-0.004***	-0.003***
	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.000)	(0.000)	(0.001)
Leverage	-0.003	-0.003	-0.005	0.598***	0.540***	0.476***	-0.062***	-0.087***	-0.091***	-0.051***	-0.049***	-0.045***
	(0.003)	(0.005)	(0.007)	(0.025)	(0.029)	(0.036)	(0.011)	(0.013)	(0.016)	(0.008)	(0.008)	(0.012)
ROA	0.010*	0.014*	0.008	-0.036	-0.036	-0.043	-0.080***	-0.094***	-0.097***	-0.001	-0.012	0.003
	(0.005)	(0.008)	(0.010)	(0.029)	(0.036)	(0.047)	(0.016)	(0.020)	(0.028)	(0.012)	(0.015)	(0.019)
Age (log)	0.006***	0.009***	0.014***	0.007**	0.008***	0.009**	0.010***	0.012***	0.012***	-0.007***	-0.009***	-0.012***
	(0.001)	(0.001)	(0.002)	(0.003)	(0.003)	(0.004)	(0.003)	(0.004)	(0.005)	(0.002)	(0.002)	(0.002)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	6,866	4,915	3,132	6,775	4,405	2,679	6,788	4,437	2,708	6,663	4,315	2,578
R-squared	0.097	0.135	0.174	0.361	0.348	0.317	0.088	0.097	0.087	0.035	0.040	0.039

Robust and clustered (by firm) standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 9: Blocks' Effects on Acquirers

The panel presents OLS regressions for firms characteristics on a dummy that takes the value of one (1) for all blocks, and zero otherwise, and a set of controls. Panel A shows regressions were dependent variables are intangible fixed assets, patents, citations and the citations over patents ratio. Panel B shows regressions where dependent variables are asset growth, leverage, tangible fixed assets and cash holdings. For the dependent variables I follow Kim and Weisbach (2008) as specified in the main text. Controls also include targets and acquirers characteristics before the deal: assets (in log); leverage, defined as debt over assets; returns over assets (ROA), defined as EBITDA (EBIT) over total assets; and firm age (in log). Controls also include country, industry (1-digit SIC) and year fixed effects. All variables are winsorized at the 1%. Data is from Zephyr, Patstat and Amadeus.

Panel A: Acquirers and Contractual Incompleteness (Cross-Section)

	Intangible Fixed Assets			Patents			Citations			Citations over Patents Ratio		
Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	t+1	t+3	t+5	t+1	t+3	t+5	t+1	t+3	t+5	t+1	t+3	t+5
Block	-0.055***	-0.052***	-0.055***	-0.011***	-0.023**	-0.039***	-0.001	-0.014	-0.029**	-0.225***	-0.261***	-0.216*
	(0.004)	(0.005)	(0.006)	(0.004)	(0.009)	(0.014)	(0.004)	(0.009)	(0.014)	(0.067)	(0.084)	(0.122)
Assets (log)	0.004***	0.004***	0.004***	0.002***	0.004***	0.004***	0.002***	0.003***	0.003*	0.076***	0.080***	0.079***
	(0.000)	(0.001)	(0.001)	(0.000)	(0.001)	(0.002)	(0.000)	(0.001)	(0.001)	(0.007)	(0.010)	(0.014)
Leverage	0.013*	0.010	0.011	-0.020***	-0.053***	-0.084***	-0.015***	-0.041***	-0.062***	-0.382***	-0.618***	-0.506***
	(0.007)	(0.009)	(0.012)	(0.005)	(0.014)	(0.024)	(0.005)	(0.013)	(0.022)	(0.079)	(0.126)	(0.177)
ROA	-0.019	-0.003	-0.001	0.008	0.030	0.002	-0.002	0.002	-0.037	-0.354**	-0.372	-0.265
	(0.013)	(0.015)	(0.019)	(0.010)	(0.025)	(0.034)	(0.008)	(0.020)	(0.026)	(0.175)	(0.245)	(0.321)
Age (log)	-0.007***	-0.004**	-0.001	-0.000	-0.004	-0.010	-0.000	-0.004	-0.005	0.029	0.023	0.017
	(0.001)	(0.002)	(0.002)	(0.002)	(0.004)	(0.006)	(0.002)	(0.004)	(0.007)	(0.020)	(0.030)	(0.045)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	6,504	4,033	2,389	7,403	4,015	2,169	7,403	4,015	2,169	7,403	4,015	2,169
R-squared	0.043	0.045	0.055	0.012	0.011	0.016	0.007	0.007	0.009	0.045	0.041	0.036

Robust and clustered (by firm) standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Panel B: Acquirers and Financial Constraints (Cross-Section)

	Asset Growth			Leverage			Tangible Fixed Assets			Cash Holdings Ratio		
Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	t+1	t+3	t+5	t+1	t+3	t+5	t+1	t+3	t+5	t+1	t+3	t+5
Block	-0.005**	-0.008**	-0.003	-0.044***	-0.053***	-0.066***	0.033***	0.022*	0.037***	0.066***	0.072***	0.072***
	(0.002)	(0.003)	(0.005)	(0.006)	(0.007)	(0.010)	(0.010)	(0.011)	(0.014)	(0.006)	(0.007)	(0.009)
Assets (log)	-0.004***	-0.006***	-0.007***	-0.001	-0.000	-0.001	0.005***	0.005***	0.006***	-0.003***	-0.003***	-0.003***
	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.000)	(0.000)	(0.001)
Leverage	0.002	0.011*	0.009	0.725***	0.660***	0.605***	-0.189***	-0.222***	-0.214***	-0.034***	-0.041***	-0.048***
	(0.004)	(0.006)	(0.009)	(0.013)	(0.016)	(0.021)	(0.014)	(0.016)	(0.021)	(0.008)	(0.009)	(0.011)
ROA	-0.014**	-0.020**	-0.020	-0.004	-0.037	-0.025	-0.278***	-0.295***	-0.272***	0.105***	0.107***	0.093***
	(0.007)	(0.010)	(0.015)	(0.023)	(0.028)	(0.038)	(0.026)	(0.030)	(0.041)	(0.018)	(0.021)	(0.029)
Age (log)	0.003**	0.006***	0.008***	0.000	0.000	0.005	-0.004	0.003	-0.001	0.001	-0.002	-0.004**
	(0.001)	(0.001)	(0.002)	(0.002)	(0.002)	(0.003)	(0.003)	(0.004)	(0.005)	(0.001)	(0.002)	(0.002)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	6,571	4,323	2,666	6,501	4,067	2,413	6,504	4,033	2,389	6,391	3,930	2,313
R-squared	0.066	0.100	0.118	0.570	0.524	0.469	0.069	0.093	0.094	0.062	0.085	0.097

Robust and clustered (by firm) standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Figure 1: Blocks' Acquisitions within Countries

The figure shows within country block activity against an index that measures minority investor protection (Djankov et al (2008)). Volume is the proportion of listed firms that were part of a block acquisition, as in Rossi and Volpin (2004). Data is from Zephyr, World Bank and Djankov et al (2008).

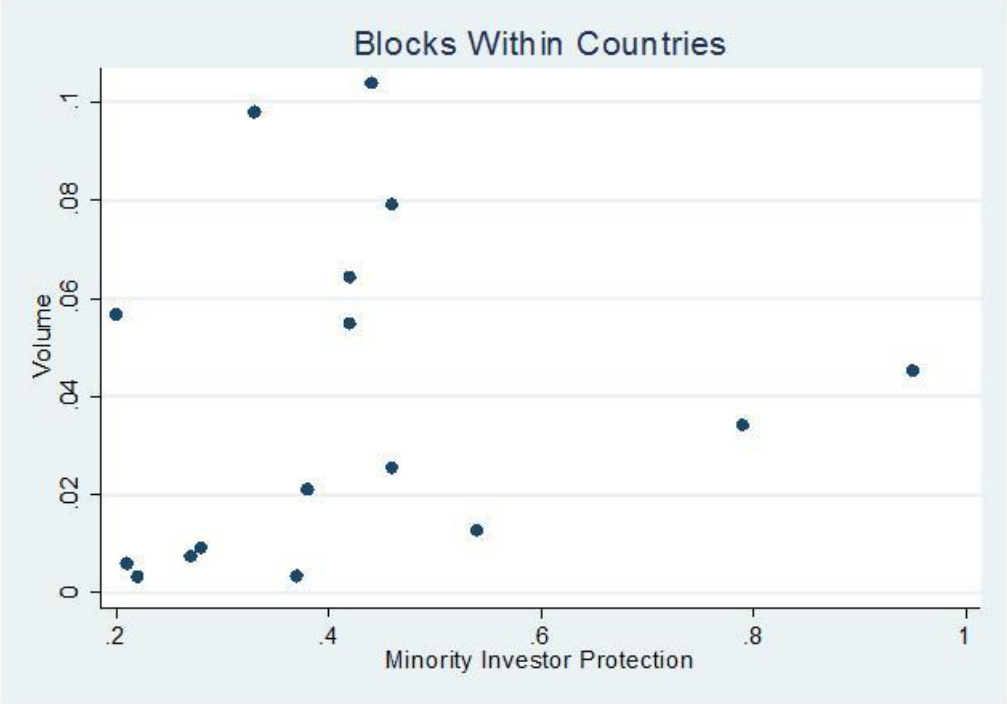
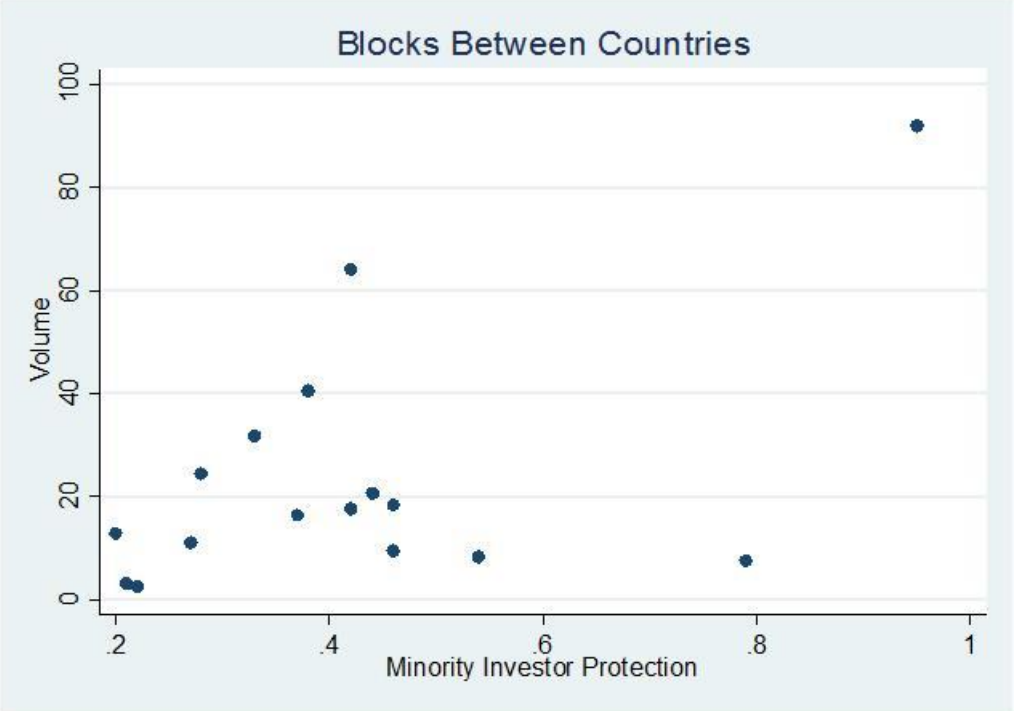


Figure 2: Blocks' Acquisitions between Countries

The figure shows cross-country block activity against an index that measures minority investor protection (Djankov et al (2008)). Volume is the proportion of cross-country block acquisitions over all block acquisitions, as in Rossi and Volpin (2004). Data is from Zephyr, World Bank and Djankov et al (2008).



Appendix 1: Blocks' Acquisitions and Changes in the Board

The table presents marginal effects of probit regressions for blocks acquisitions, where board appointments in blocks targets take the value of one (1) and no changes in boards of targets of blocks acquisitions takes the value of zero (0). Columns one to six consider appointments the year of the deal. Columns seven to ten consider appointments the year after the deal. Independent variables include free-float, the proportion of shares available to ordinary investors; agency problems, a dummy that takes the value of one for all firms that have a divergence between voting and cash flow rights; multiple voting shares, a dummy that takes the value of one for all firms with multiple voting shares; and dual-class shares, a dummy that takes the value of one for all firms with dual- class shares. Other control (not shown) include targets and acquirers characteristics before the deal: assets (in log); leverage, defined as debt over assets; returns over assets (ROA), defined as EBITDA (EBIT) over total assets; and a listed status dummy, that takes the value of 1 for all listed firms; the initial stake the acquirer had in the target (if any); dummy variables for payment in cash or shares; target and acquirers' country, and industry (1-digit SIC code) fixed effects, as well as year fixed effects. Data is from Zephyr and DataStream. All variables are winsorized at the 1%.

Appendix A: Block Acquisitions and Changes in the Board

	Year of the Deal				Year After the Deal			
Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Free-Float	0.00	-0.00	0.00	-0.00	0.00	0.00	0.00	0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Agency Problems		0.04				-0.06		
		(0.06)				(0.06)		
Multiple Voting Shares			0.11				-0.16*	
			(0.07)				(0.09)	
Dual-Class Shares				0.07				-0.02
				(0.07)				(0.08)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,339	1,339	1,339	1,339	1,067	1,067	1,067	1,067

Robust and clustered (by acquirer) standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Appendix 2: Blocks' Acquisitions and the Size of the Acquired Stake

The table presents OLS and Tobit regressions for the acquired stake in blocks acquisitions of listed firms. The dependent variable is the acquired stake. Independent variables include free-float, the proportion of shares available to ordinary investors; agency problems, a dummy that takes the value of one for all firms that have a divergence between voting and cash flow rights; multiple voting shares, a dummy that takes the value of one for all firms with multiple voting shares; and dual-class shares, a dummy that takes the value of one for all firms with dual- class shares. Other control (not shown) include targets and acquirers characteristics before the deal: assets (in log); leverage, defined as debt over assets; returns over assets (ROA), defined as EBITDA (EBIT) over total assets; and a listed status dummy, that takes the value of 1 for all listed firms; the initial stake the acquirer had in the target (if any); dummy variables for payment in cash or shares; target and acquirers' country, and industry (1-digit SIC code) fixed effects, as well as year fixed effects. Data is from Zephyr and DataStream. All variables are winsorized at the 1%.

OLS and Tobit Regressions on Blocks' Acquired Stake for Listed Firms

	OLS			**Tobit**		
Variables	(1)	(2)	(3)	(4)	(5)	(6)
Free-Float	-0.01***	-0.01***	-0.01***	-0.01***	-0.01***	-0.01***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Agency Problems	0.29			0.29		
	(0.26)			(0.25)		
Multiple Voting Shares		0.75*			0.74*	
		(0.42)			(0.42)	
Dual-Class Shares			-0.18			-0.19
			(0.29)			(0.28)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2,376	2,376	2,376	2,376	2,376	2,376
R-squared	0.36	0.36	0.36			

Robust and clustered (by acquirer) standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Appendix 3: Blocks and Changes in Managerial Ownership

The table presents statistics on changes in managerial ownership around the time of the deal for targets of block acquisitions. Panel A compares targets of blocks' acquisitions across time. It compares changes in managerial ownership at times t-1, t and t+1 with respect to changes in managerial ownership in different periods. Therefore it compares firm A that was target of a block acquisition with respect to itself in periods far from the deal (thus before t-2 and after t+2, where t is the time of the deal). Panel B compares changes in managerial ownership for targets of blocks' acquisitions at times t-1, t and t+1 with respect to all other listed firms in the sample. Data is from DataStream.

Panel A: Targets of Blocks across time

Targets of Blocks at	t-1	t	t+1
	0.97	0.99	0.99
Targets of Blocks in other periods	1.01	1.01	1.02
T-Test	0.93	0.38	0.41

Panel B: Targets of Blocks compared to Other Listed Firms

	t-1	t	t+1
Blocks	0.97	0.99	0.99
Non-Blocks	1.02	1.01	1.02
T-Test	1.04	0.50	0.54

Appendix 4: Blocks' Valuation Effects

The table presents the results of an event study on targets and acquirers' returns over an 11 (-5, +5) and a 3 (-1, +1) event day window centered on the event. Excess stock returns are calculated over a single factor model with parameters estimated over a 270 day interval (-270, -30).

	Targets		**Acquirers**	
	-5,+5	-1,+1	-5,+5	-1,+1
Full Sample	0.02***	0.01***	0.00	0.00*
	(0.00)	(0.00)	(0.00)	(0.00)
Contractual Incompleteness				
Acquirer cites Target	0.11	0.06	-0.02	-0.02
	(0.10)	(0.05)	(0.05)	(0.03)
Target cites Acquirer	0.02	0.01	-0.01	-0.01
	(0.04)	(0.03)	(0.03)	(0.02)
Acquirer has Patents	0.01	0.02	0.00	0.01
	(0.02)	(0.01)	(0.01)	(0.00)
Target has Patents	0.02**	0.01**	0.01	0.00
	(0.01)	(0.01)	(0.02)	(0.01)
Acquirer has Citations	0.01	0.02	0.00	0.01
	(0.01)	(0.01)	(0.01)	(0.00)
Target has Citations	0.02***	0.02***	0.01	0.00
	(0.01)	(0.01)	(0.01)	(0.01)
Agency Problems				
Acquirer has Better Minority Investor Protection	0.02***	0.01***	0.01	0.00
	(0.01)	(0.00)	(0.01)	(0.00)
Target has Better Minority Investor Protection	0.02**	0.01***	-0.02*	-0.00
	(0.01)	(0.00)	(0.01)	(0.00)
Target has Dual Class Shares	0.01	0.00	-0.02	-0.01
	(0.01)	(0.00)	(0.03)	(0.01)

Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

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